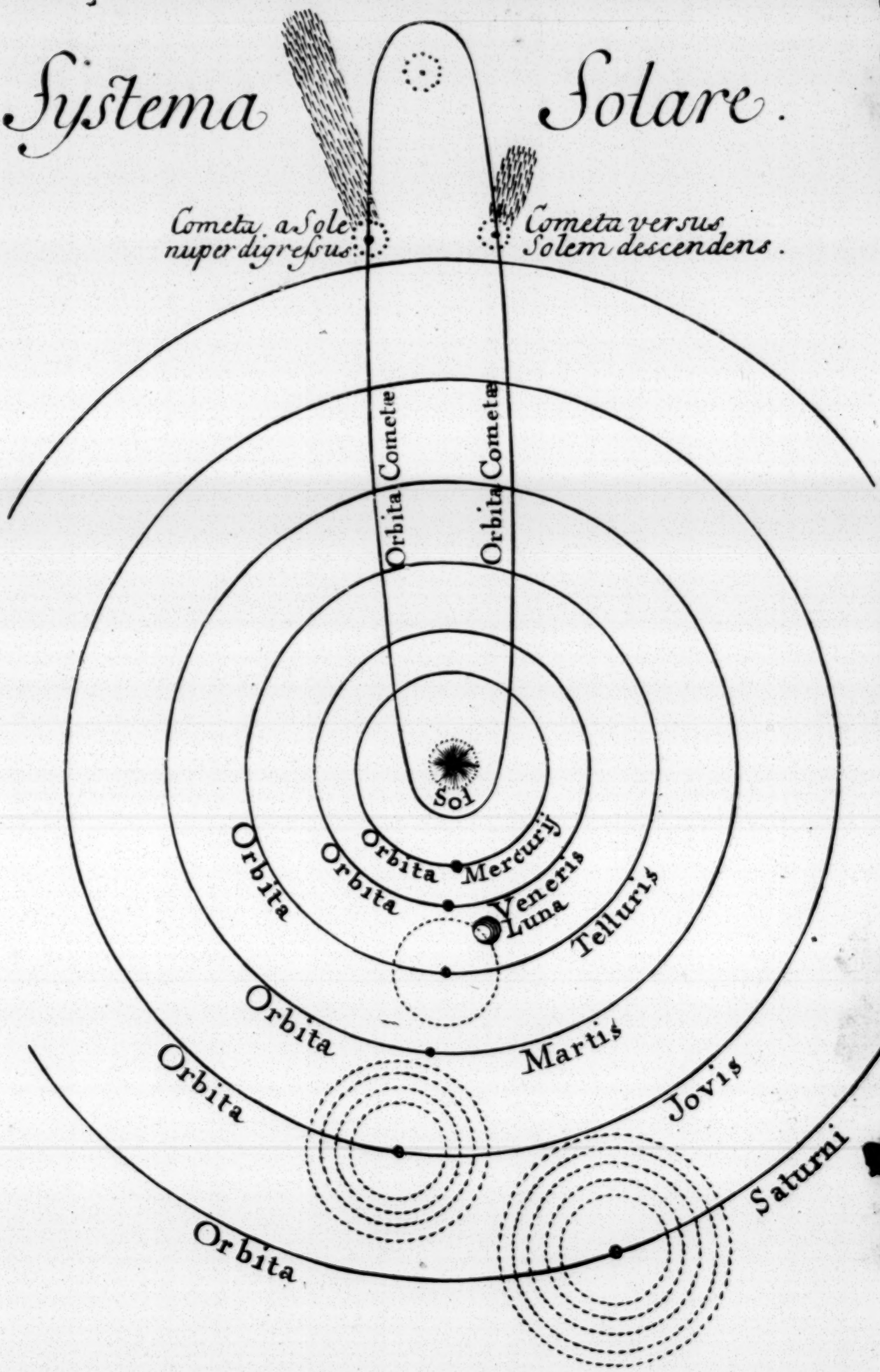
Systema Solare.



A NEW

THEORY

OF THE

EARTH,

From its ORIGINAL,

TO THE

CONSUMMATION of all Things.

WHEREIN

The CREATION of the World in Six Days,

The Universal DELUGE,

And the General CONFLAGRATION,

As laid down in the Holy Scriptures,

Are shewn to be perfectly Agreeable to

REASON and PHILOSOPHY.

With a large Introductory Discourse concerning the Genuine Nature, Stile, and Extent of the *Mosaick* History of the CREATION.

By *WILLIAM WHISTON*, M. A. late Professor of the *Mathematicks* in the University of *CAMBRIDGE*.

The FOURTH EDITION,

Revised and Corrected by the AUTHOR.

LONDON:

Printed for SAM. TOOKE and BENJ. MOTTE, at the *Middle-Temple-Gate* in *Fleetstreet*. MDCCXXV.

MVSEVM
BRITAN
NICVM

SUmmo Viro ISAACO NEWTON, Equiti Aurato, Apud *Cantabrigienſes* quondam Matheſeωs Profeſſori Lucaſiano longe Celeberrimo, Apud *Londinenſes* Societatis Regalis Præſidi Ornatiſſimo, nec non Regio Nummorum Cuſorum Magiſtro; Reipublicæ, quoquò patet, Literariæ Ornamento; Seculi, Gentis, Academiæ egregio Decori; Orbis Philoſophici Deliciis. Qui rem literariam, præſertim Mathematicam eouſque Excoluit, Adauxit, Dilatavit, ut ipſam Phyſicam intra pomœria ſua complecti, & Mundi Syſtema, conatu inaudito, ditioni ſuæ ſubjicere tandem aliquando audeat. Quem Morum Candor & Modeſtia; Quem Sagax animus & penetrans; Quem aſſidui Labores, indefeſſæ Vigiliæ, Induſtria incredibilis, pro-

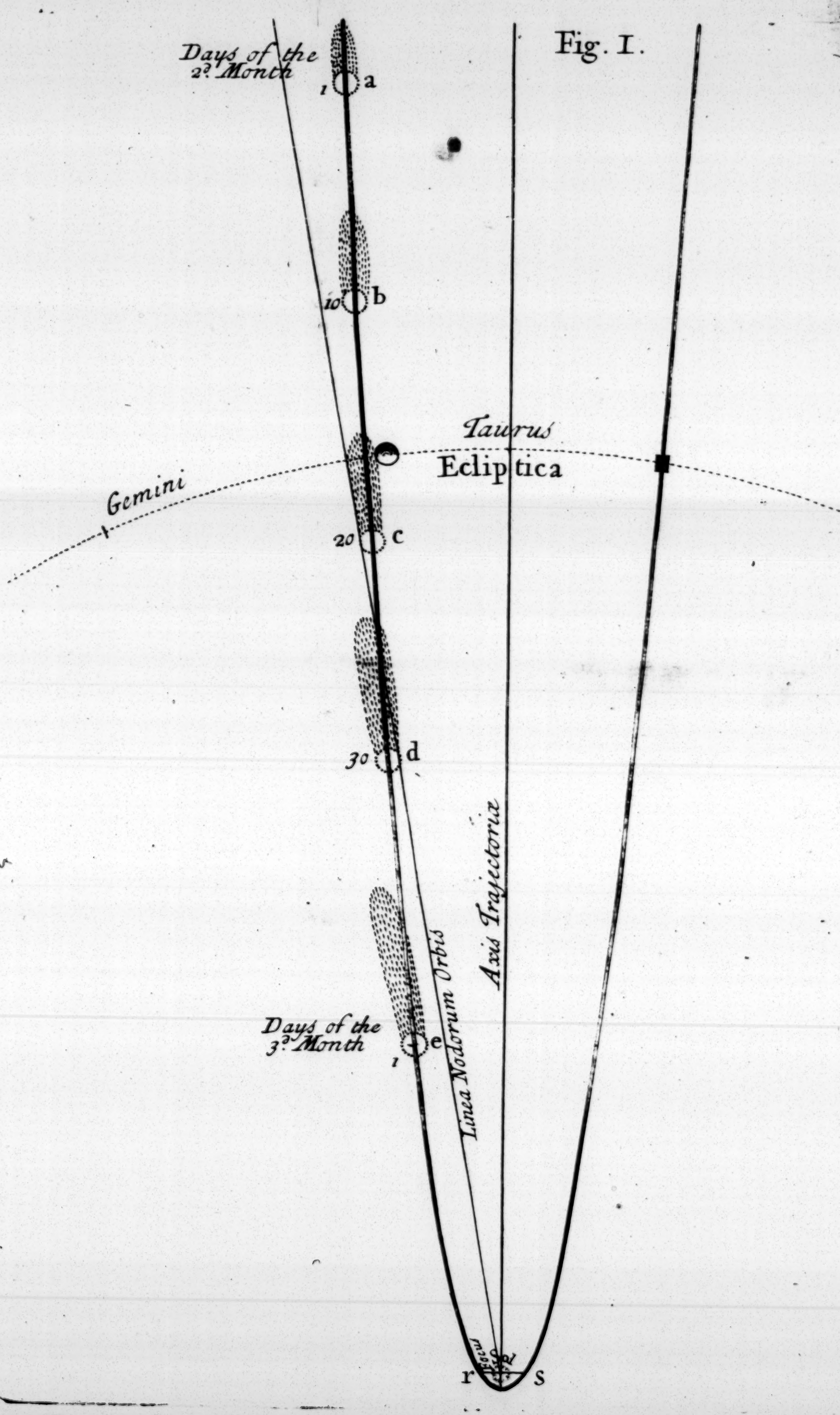
promovendis veræ ac ſolidæ Sapientiæ ſtudiis unicè dicata; quem Rerum Divinarum Humanarumque, hoc eſt Univerſæ Philoſophiæ peritia planè ſingularis; Quem demum PHILOSOPHIÆ NATURALIS, quin & OPTICES ſpeciatim, hoc eſt mirandorum Lucis & Colorum Phænomenorum PRINCIPIA MATHEMATICA, auro contrà æſtimanda, & mortalibus vix aut ne vix quidem propalanda temerè, Ultimæ poſteritati æternùm Commendabunt.

Exiguum hocce Tentaminis Philoſophici Spicilegium, è Meſſe NEWTONIANA primitùs ſublectum; Subſidiis, Conſiliis, Auſpiciis potiſſimùm NEWTONIANIS acceptum, uti par eſt, referendum ratus, Totum hoc, qualecunque ſit, NEWTONI nomini, in omne ævum perenaturo, Nuncupandum; &, in Grati Animi Μνημόσυνον, Conſecrandum cenſuit *Gulielmus Whiſton.*

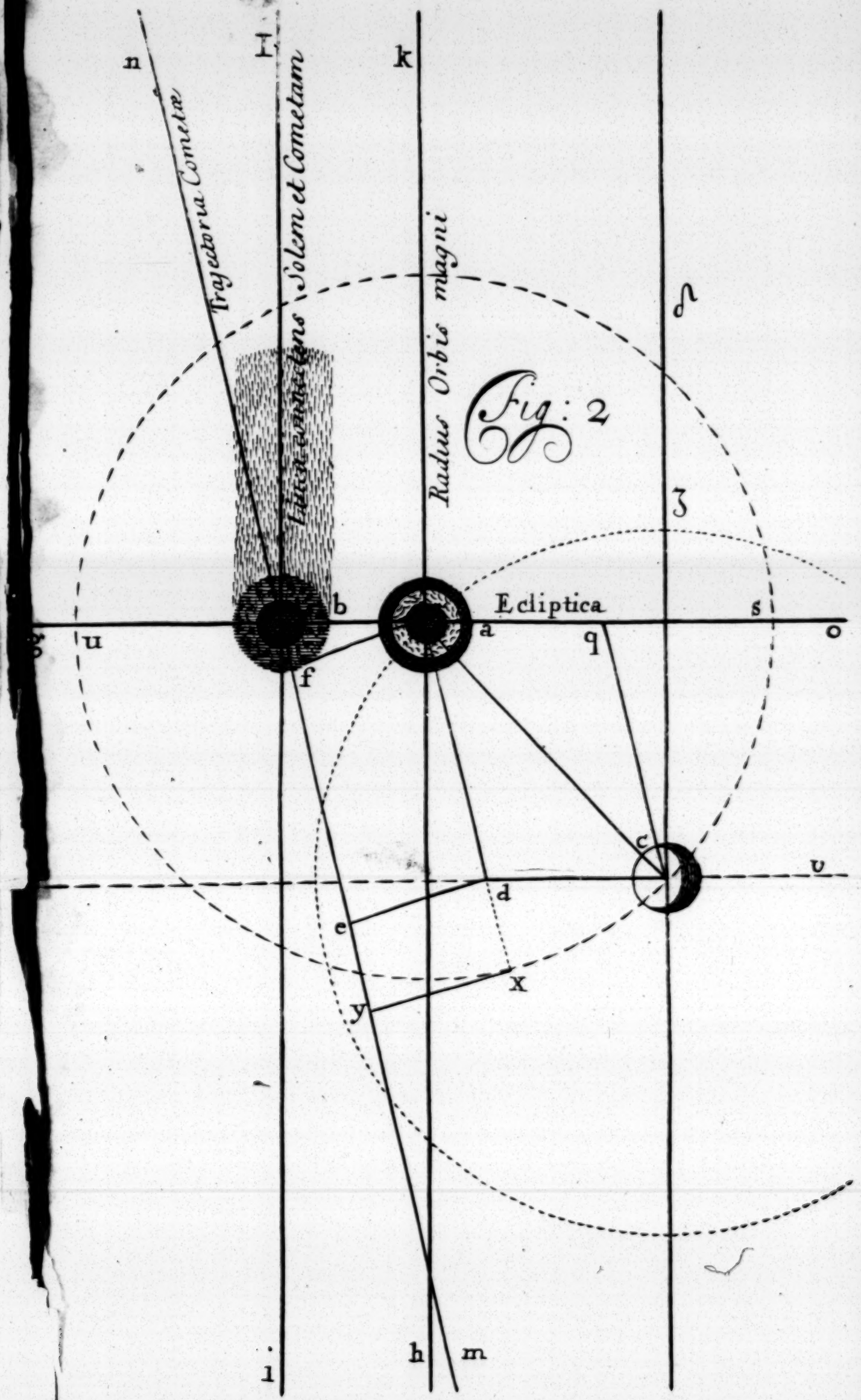
Nov. 10. 1724.

A DIS.

Fig. I.


Days of the 2d. Month
1
a
10
b
Taurus
Ecliptica
Gemini
20
c
30
d
Axis Trajectoriæ
Linea Nodorum Orbis
Days of the 3d. Month
1
e
Focus
r
S

Aries


n
H
K
Trajectoria Cometæ
Solem et Cometam
Radius Orbis magni
Fig: 2
ℑ
Ecliptica
b
a
s
o
g
u
f
q
c
v
d
e
x
y
l
h
m

P

H

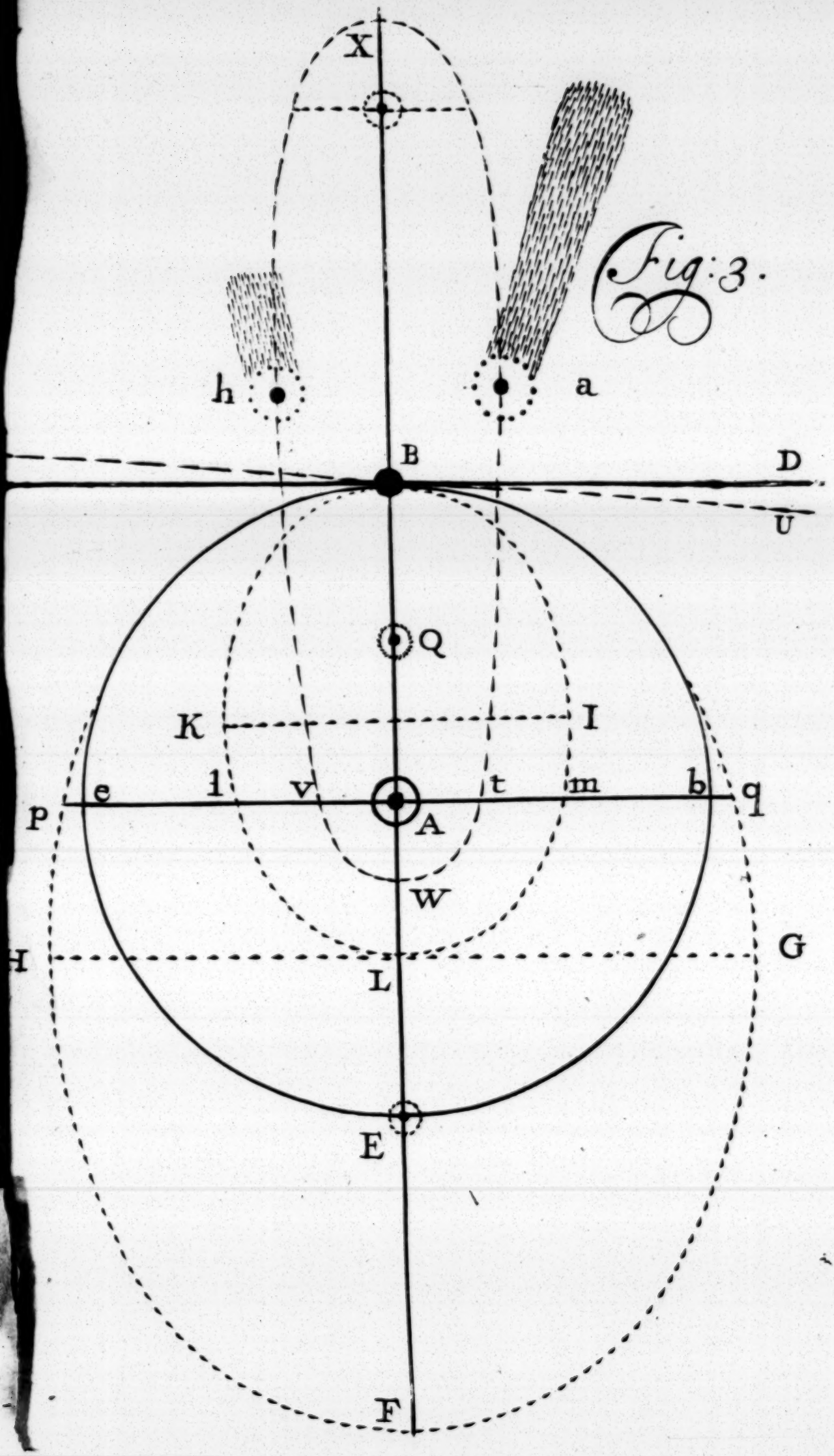


Fig: 3.

Fig. 4.

Ecliptica

Semita Stellarum per Almucantharam, et Quadrantem Cometæ,

Radius Orbis Magni

Tangentiæ Cometæ

a

c

p

q

B 3 L

Fig: 5.

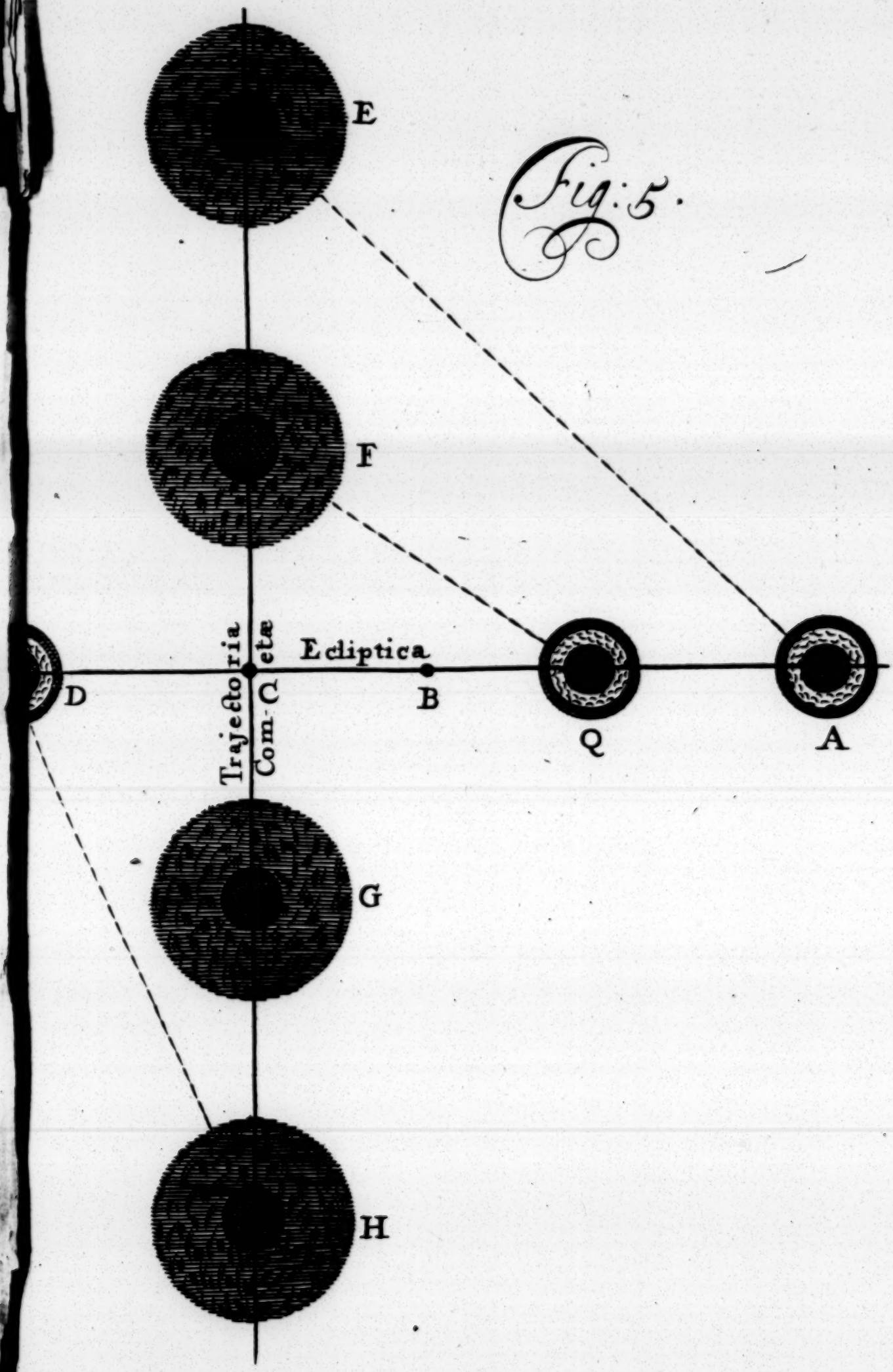
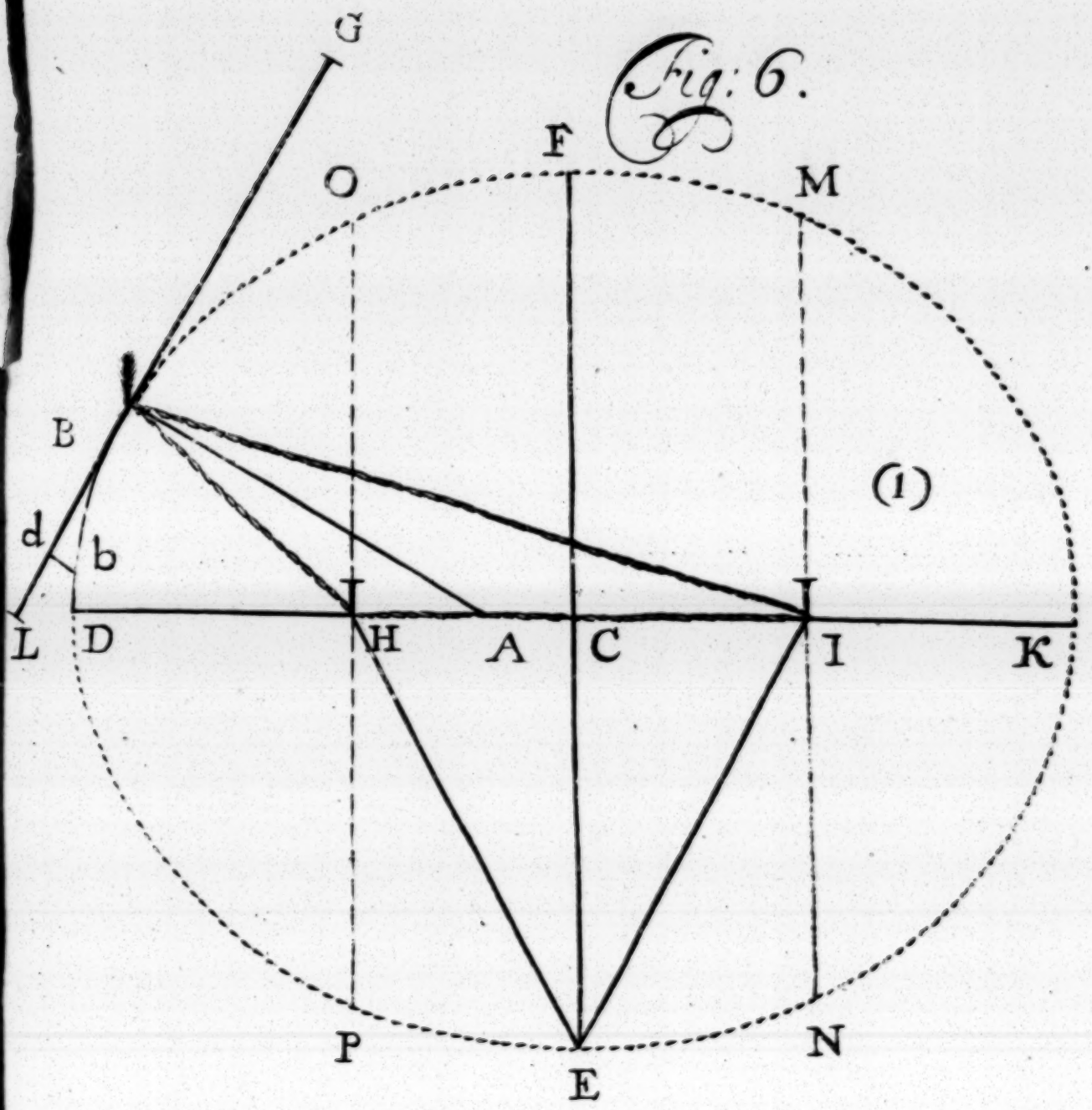


Fig: 6.



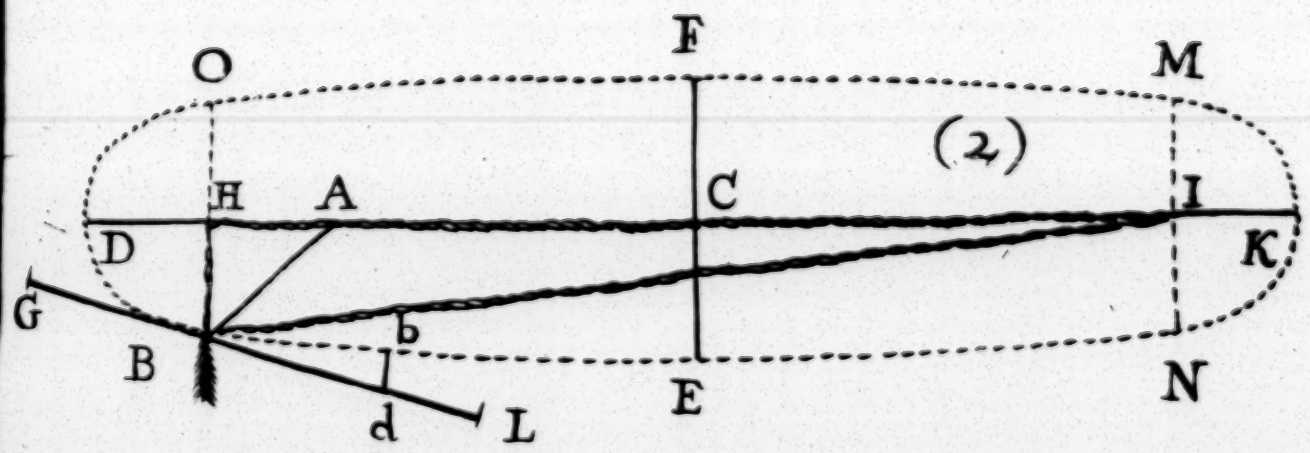
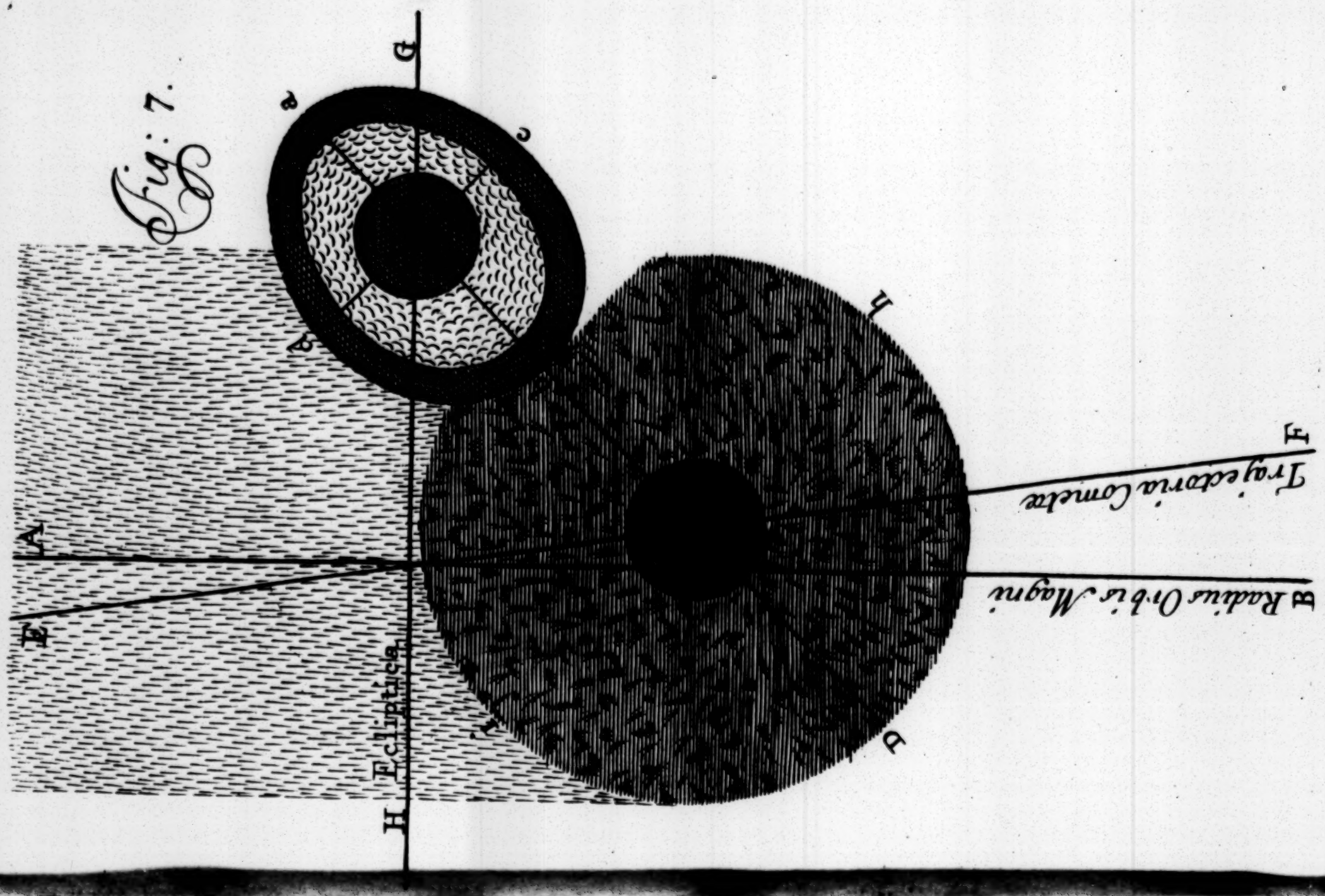


Fig: 7.


G
a
c
d
A
E
H
E clipticus
D
B Radius Orbis Magni
Trajectoria Comitæ
F

A

DISCOURSE

Concerning the

Nature, Stile, and Extent

OF THE

Moſaick HISTORY

OF THE

CREATION.

IT being no inconſiderable Part of the enſuing Theory, to account for the Creation of the World, agreeably to the Deſcription thereof in the Book of *Geneſis*, it cannot but be very neceſſary in this Place, to diſcourſe of the Nature of that Sacred Hiſtory, the Stile in which it is Writ, and how far it is to be Extended. The Miſunderſtanding of which Points has been, I think, the principal Occaſion of thoſe Perplexities and Contrarieties into which Men have run with relation to it; while ſome have adher'd to the common and vulgar, tho' leſs rational Expoſition; without any Conſideration of Nature, Reaſon, Philoſophy, or juſt *Decorum* in the

ſeveral Parts of it: And Others, on the contrary, have been ſo ſenſible of the Wildneſs and Unreaſonableneſs of *That*, that they have ventur'd to exclude it from any juſt Senſe at all; aſſerting it to be a meer Popular, Parabolick, or Mythological Relation; in which the plain Letter is no more to be accounted for, or believ'd, than the fabulous Repreſentations of *Æſop*, or at beſt, than the myſtical Parables of our Saviour. Of what miſchievous Conſequence this latter is commonly eſteem'd, I need not ſay; a late excellent Author, who thought it abſolutely neceſſary to be introduc'd, having felt Reflections ſufficiently ſevere, and ſeen Effects ſufficiently miſchievous of ſuch an Interpretation: And how unworthy of God, how incoherent and abſurd the former Expoſition is in it ſelf, and muſt be eſteem'd by free and inquiſitive Thinkers, 'tis not difficult to make appear to any impartial Man, and ſhall in this Diſcourſe be particularly attempted. Indeed I cannot but imagine that, As thoſe who plead for the Mythological Senſe, do it only becauſe they ſuppoſe it impoſſible to give a commodious and rational Scheme of it on any other Hypotheſis; and therefore will eaſily and readily embrace any more literal Interpretation which ſhall agree to the Divine Attributes, the Reaſon of their own Minds, and the true Syſtem of the World: So I think thoſe who, notwithſtanding its apparent Incongruities, adhere to the vulgar Expoſition, will have great reaſon to encourage, and reſt ſatisfy'd in ſuch an Account, as ſhall at once keep ſufficiently cloſe to the Letter of *Moſes*, and yet be far from allowing what contradicts the Divine Wiſdom, Common Reaſon, or Philoſophick Deductions: To both which therefore, I perſuade

Dr. T. Burnet's *Theory of the Earth*, and *Archæologia.*

my ſelf this new Attempt ought not to be unacceptable.

But becauſe the principal Difficulty is likely to ariſe from the Prejudices and Prepoſſeſſions of the latter, and from the vulgar and common Notions already fix'd in the Minds of moſt Men, relating to this *Moſaick* Creation; I ſhall in this Place chiefly have a reſpect to them, and endeavour to evince, That the Notions they have entertain'd of the Nature, Stile, and Extent of the Creation of the World in Six Days, are falſe, precarious, and no leſs contrary to the Holy Scriptures themſelves, than to ſound Reaſon and true Philoſophy. The Propoſition therefore which ſhall be the Subject of this Diſſertation, and includes the whole Point before us, ſhall be this: *The* Moſaick *Creation is not a Nice and Philoſophical Account of the Origin of all Things; but an Hiſtorical and True Repreſentation of the Formation of our ſingle Earth out of a confus'd Chaos, and of the ſucceſſive and viſible Changes thereof each Day, till it became the Habitation of Mankind.*

That this Propoſition is exactly agreeable to that Account, which in the following Theory is given of this Creation, will be evident upon the Peruſal thereof; and that the ſame Propoſition is alike agreeable to the Deſign and Stile of the Sacred Penman in the firſt Chapter of *Geneſis*, is what I am now to make appear. And that I ſhall endeavour to do by the following Arguments; which though they might have been diſtinguiſh'd, and ſuited to the ſeveral Branches of this Aſſertion, yet for Eaſe I ſhall wave that Niceneſs, and ſet them down indifferently in that Order they were put into by my own Thoughts, before I intended to adapt them to the juſt Form

of the foregoing Propoſition: Strength of Reaſoning, more than Exactneſs of Compoſure, being the Aim of the Author in this whole Theory: And if he be found to go upon ſolid Grounds, he hopes the Reader will never the leſs embrace the Concluſions, becauſe of the Inaccuracy of the Stile, or Harſhneſs of the Periods; which wholly to have avoided, he freely owns, would to him have been more tedious and operoſe than the Work it ſelf; and ſo he hopes 'twill not be expected from him by the Inquiſitive Reader: Which Apology once for all he deſires may be accepted, and call'd to mind whenever (as too frequently it will) there ſhall be Occaſion in the following Pages.

I. The very firſt Words of *Moſes* plainly imply, That the Production of all the World out of Nothing, which we uſually ſtile *Creation*, was precedaneous to the Six Days Works, given an Account of in the ſame Chapter. *In the beginning God created the heaven and the earth*, ſays the Scripture; which is, as I take it, a Preface or Introduction to the following Account, and may be thus paraphras'd: "Although that Hiſtory of "the Origin of the World, which ſhall now be "given you, do not extend any farther; as will "appear preſently, than that Earth we live upon, with thoſe Bodies which peculiarly be"long to it; and ſo the reſt of the Univerſe be "not at all directly concern'd therein; and al"though the ſame Hiſtory will not reach to the "*Creation* of the Matter, but only Production "of the Form, and Diſpoſition of the Earth it "ſelf: Yet, to prevent any Miſunderſtanding, "and obviate any ill Effects of perfect Silence "touching theſe Things, I am oblig'd, by the

Gen. i. 1.

"Divine

" Divine Command, to assure you, That the " Original of all Beings whatsoever, was pri- " marily owing to that same God of *Israel*, " whose Works I am going to relate; and that " not only this Earth, with all its Bodies, but " the vast Frame of Universal Nature, was by " him at first created out of Nothing, and di- " spos'd into those several Systems which now " are extant, and make up what, in the largest " Sense, is stil'd Heaven and Earth, or the whole " World.

This Sense of the Words is allow'd by our late Excellent Commentator, the Right Reverend the late Lord Bishop of *Ely*; whose Sentiments cannot but be justly valued by all who are conversant in his Expositions of the Holy Scriptures; and is, I think, not a little confirm'd by the following Words; *And the Earth was without Form and Void, and Darkness was upon the Face of the Deep, and the Spirit of God moved on the Face of the Waters.* Gen. i. 2. Where'tis clear, that as soon as the Holy Writer descends to the Description of the Chaos, and the commencing of the Six Days Creation, he mentions not a Word of any Production out of Nothing, (before suppos'd and asserted to have been past and done, *In the Beginning of Things.*) He omits and thereby seems to exclude that *Heaven*, or those Superior Systems of the World already spoken of, from any Place therein: And by the whole Coherence appears to confine the Narration following to the Earth alone, with its Dependances. *Moses* does not say, as the common Expositors do, " That just at " the Commencing of the Six Days Work, the " Earth, and all the rest of the World was " originally produc'd; But that, When God " had (formerly) created all the World, which

" uſually diſtinguiſh'd into the Heaven and " the Earth, the Latter of theſe, (the Conſide- " ration whereof was alone pertinent to the " preſent Deſign) at the Time preceding the " Six Days Work, was in a Wild, Irregular, " and Dark Condition; or ſuch a perfect Chaos, " as nothing but the Power of God, and his " Spirit's moving on, and influencing the ſame, " could ever have reduc'd into a habitable " World.

This is a very eaſy and natural Account of this Matter, and I think the moſt obvious and genuine ſignification of the Words themſelves. And were not Men's Minds too much prejudic'd with other Apprehenſions, this alone might be ſufficient to limit their Thoughts, and prevent their Enquiries after any *Creation of Bodies out of Nothing* in the Six Days Work; and their ſtretching the ſame beyond the Earth, either to the whole Syſtem of Things, as the moſt do; or indeed to the Solar Syſtem, with which others are more modeſtly contented in the Caſe. Which two Things once granted me, the Propoſition we are now upon would ſoon be eſtabliſh'd, and little farther Labour become neceſſary.

But that I may give all poſſible Satisfaction, and lay this Foundation firm, on which my Account of the *Moſaick* Creation is entirely ſuperſtructed; I ſhall more at large prove the ſame Truths: Craving the Pardon of thoſe Readers who are already ſatisfy'd in theſe Matters, if I ſhall ſeem to them to inſiſt too long on a plain Caſe; as perhaps they may (and that I think very juſtly) eſteem this to be.

And indeed, The Prejudices of Men are here ſo great; their ill Opinion of Philoſophical Hypotheſes

potheſes in theſe Caſes ſo deeply rooted; the Attempts hitherto made have been ſo unſucceſsful, and beſides, the Honour of God in his Holy Word is ſo much concern'd; and the uſual Expoſitions of this *Hiſtory of the Origin of Things* are ſo poor, ſo jejune, ſo unbecoming the Penman, much more the primary Author of the ſame; that a large and full Diſcourſe is but neceſſary: And tho' it ſhould prove ſomewhat prolix, will be, 'tis hop'd, not improper; but as well ſerviceable to Religion as to Philoſophy; by reſcuing this Ancient, Venerable and Sacred Account of the Origin of Things, from ſuch falſe and unwary Gloſſes as have been, and ſtill are put upon it; as have rendred it, in the Opinion of too many, an uncouth and incredible Syſtem; nay, ſomewhat below ſome of thoſe Θεογονίαι or Κοσμογονίαι which the imperfect Traditions of the Heathen World enabled them to deſcribe. To proceed therefore in the Arguments before us, I affirm,

II. That the Words here us'd of *Creating*, *Making* or *Framing* of Things, on which the main Streſs is laid, in the Stile of Scripture are frequently of no larger Importance than the Propoſition we are upon does allow; and ſignify no more than the ordering, diſpoſing, changing, or new modelling thoſe Creatures which exiſted already, into a different, and ſometimes perhaps a better, and more uſeful State than they were in before. I do not ſay this is the utmoſt, or only Importance of theſe Words; I have already allow'd, that Creating, in the firſt Words of *Geneſis*, includes Producing out of Nothing; and I add, that in our common Creed, wherein we profeſs our *Faith in God the Father Al-*

mighty, Maker of Heaven and Earth; the Words are, agreeably to the Extent of the Divine Power, and the Nature of that Profeſſion, to be taken in the ſame large and comprehenſive Senſe: And the like is to be ſaid of many other Places of the Holy Scripture. But then I obſerve withal, that the other more narrow and limited Senſe is very common and familiar in the Holy Writings; and therefore, where the Subject-matter and Coherence require it, as I think 'twill be evident they do in the preſent Caſe, theſe Words both may and ought to be taken in the ſame limited Acceptation.

This Signification of the two latter Words *Make* and *Frame*, will, I ſuppoſe, be granted me by all; and that the ſame is as true of the other word *Create*, the following Texts will ſufficiently evince; and from the promiſcuous Uſe of them all, and others of a like Importance, might however be fairly ſuppos'd. *If*, ſays Moſes, *the Lord make a new thing*, or *Create a Creature, and the Earth open her Mouth and ſwallow them up*. Where none can imagine any Thing produc'd out of Nothing; but only ſuch an unuſual and miraculous diſpoſal of Things as would at once demonſtrate God's Vengeance againſt the Wicked, and his abſolute Command over all Creatures. Thus God himſelf ſays, *I form the light and Create darkneſs; I make peace and Create evil; I the Lord do all theſe things*: Where the Objects of the Divine Creation being not real and ſubſtantial Beings, could not be capable of a proper Production out of Nothing: Which alſo is the Caſe in the Verſe immediately following, *Let righteouſneſs ſpring up together; I the Lord have Created it*. Thus alſo, ſays God by the ſame Prophet; *I Create new Heavens and a new Earth*: which,

Num. xvi. 30.

Iſa. xlv. 7.

Ver. 8.

Cap. lxv. 17.

which, tho' the very Caſe before us, yet would oddly enough be expounded of an Annihilation of the World, and a Reproduction of it again. But what comes ſtill more home to our Purpoſe is, that in the very Hiſtory of the Creation it ſelf, the word *Create* as well as *Make*, is us'd in the Senſe we contend for; the very ſame Things being aſcrib'd to the Creating and Making Power of God, which are alſo deſcrib'd as the regular Offſpring of the Earth and Seas: *God Created great Whales, and every living Creature that moveth; which the waters brought forth abundantly after their kind. And God ſaid, Let the Earth Bring forth the living Creature after his kind, Cattle and creeping thing, and Beaſt of the Earth after his kind; and it was ſo: And God made the Beaſt of the Earth after his kind, and Cattle after their kind, and every thing that creepeth upon the Earth after his kind: And God ſaw that it was good.* Gen. i. 21. ver 24, 25.

So that ſince the Words made uſe of in the Hiſtory of the Creation are there, and every where taken promiſcuouſly; ſince ſome of them are, by the Confeſſion of all, of no larger Importance than the Propoſition before us will admit; and ſince, laſtly, that Word, of which the greateſt Doubt can ariſe, has been prov'd not only in other Texts of Scripture, but in the very Hiſtory of which we are treating, to be of no more determinate Signification than the reſt, and alike capable of the Senſe we here put upon it; I think 'tis a clear Caſe, that if no Argument can be drawn from ſuch Words *for*, yet neither can there juſtly be any *againſt*, that Propoſition we are now upon.

III. Thoſe ſynonymous Phraſes, *The World*; or *the Heavens*, and *the Earth*, under which the Object

ject of the six days Creation is comprehended every where in Scripture, do not always denote the whole System of Beings; no, nor any great and general Portion of them; but are in the Sacred Stile frequently, if not mostly, to be restrain'd to the terraqueous Globe with its dependances; and consequently both *may*, and, if the subject matter require it, *ought* to be understood in such a restrained sense, and no other: That by these Phrases the *Mosaick Creation*, or six days work is usually understood, is evident every where in Scripture, as the following Texts will easily evince: *God who made the World, and all things therein. The Divine Λόγος was in the World, and the World was made by Him, and the World knew Him not.* Hence those frequent Expressions, *From the Foundation of the World, from the Beginning of the World, from the Creation of the World*, and *before the World was*; which, tho' capable of including more, must yet be allow'd to have generally a peculiar, nay, sometimes, a sole regard to the six days work, particularly stil'd by St. *Mark*, *The Beginning of the Creation which God created*..

Acts xvii. 24. John i. 10. Mat. xiii. 35. & xxiv. 21. & xxv. 34. Luke xi. 50. John xvii. 5. 24. Rom. i. 20. Eph. i. 4. Heb. iv. 3. & ix. 26. 1 Pet. i. 20. Apoc. xiii. 8. & xvii. 8. Mark xiii. 19. Gen. ii. 1. ver. 4. Command. 4.

In the same manner, and with the like frequency, the other Phrase, *Heaven and Earth*, denotes the same six days work also: *Thus the Heavens and the Earth were finish'd, and all the Host of them. These are the Generations of the Heavens and of the Earth when they were created, in the day that the Lord God made the Earth and the Heavens. In six days the Lord made Heaven and Earth, the Sea, and all that in them is, and rested the seventh day*; which being so express, I shall not need to look out for any other parallel places.

And that both the *World*, and *Heaven and Earth*, signify the terraqueous Globe alone, with its

its Air or Atmoſphere, and other Appurtenances, without including the whole Univerſe, nay, or Solar Syſtem alſo, (which yet I do not deny ſometimes to be comprehended therein) the following Texts will ſufficiently ſhew. Our Lord ſays of the Woman who pour'd the Ointment on him, *Whereſoever this Goſpel ſhall be preached in the whole World, there ſhall alſo this which this Woman hath done be told for a memorial of her.* Mat. xxvi. 13. His Charge and Commiſſion to his Apoſtles was, *Go ye into All the World, and preach the Goſpel to every Creature.* Mark xvi. 15. *The Tempter came to Jeſus, and ſhew'd him All the Kingdoms of the World, and the Glory of them.* Mat. iv. 8. In all which places, no other than the habitable Earth can be underſtood: And 'tis ſtill ſo frequent and natural for Men to uſe this manner of Speech in the ſame reſtrained Senſe to this very day, that one may the leſs wonder at the Sacred Stile in this Caſe. But this word, *the World*, having not ſo much difficulty in it, nor being ſo much ſtood upon, as thoſe which follow, *the Heavens and the Earth*, I ſhall no longer inſiſt upon it, but proceed.

And here, when the *World*, as a *totum integrale*, is divided into its two contradiſtinct Parts, *the Heavens* and *the Earth*, it will be ſaid, That by ſuch a Phraſe or Enumeration of the Parts of the Univerſe, no leſs can be meant than the whole World in the largeſt Acceptation; or, however, more muſt be intended than the bare Earth, which is but one Member or Branch, and ſo certainly leſs than that whole of which it is a part.

In anſwer whereto, I freely confeſs, That the *Heavens and the Earth* do *not ſeldom* denote the entire

entire Univerſe ; an Inſtance of which the firſt words of *Geneſis* have already afforded us ; but that they *always* do ſo, I have reaſon to deny. As the Signification of the *Earth* is known, and capable of no Ambiguity, ſo 'tis quite otherwiſe with the word *Heaven*, which in common uſe, and the ſacred Authors, ſometimes refers to
2 Cor. xii. 2. the Seat of the Bleſſed, or, in St. *Paul*'s Phraſe, the *third Heaven* ; ſometimes to the Place of the Sun, Moon, and Stars ; and otherwhiles is no farther to be extended than the Clouds, or the open *Expanſum* about the Earth, where the Air, Atmoſphere, Meteors, Clouds and Volatils, have their Abode. Inſtances of the two former Significations, were it pertinent to my preſent Purpoſe, might eaſily be produc'd ; but that not being ſo, I ſhall wave the ſame, and only prove the third and laſt Signification, namely, That by the *Heavens* is frequently underſtood nothing more than the Atmoſphere of the Earth, with its appendant or contained Bodies.

Gen. i. 7, 8. Thus, *God made the Firmament, and divided the Waters which were under the Firmament, from the Waters which were above the Firmament ; and it was ſo. And God called the Firmament, Heaven.* Which Place is ſo expreſs ; and in the very Hiſtory it ſelf, which we are about alſo, that it ought to be of peculiar Force in the preſent Caſe.

Cap. xi. 4. Thus alſo the Builders of *Babel* ſaid, *Go to, Let us build us a City, and a Tower, whoſe Top may reach unto Heaven.* So mention is made of *Cities great and fenc'd up to Heaven.* The Clouds paſs by the name of the *Clouds of Heaven* ; nay, they are by the *Pſalmiſt*, (agreeably to the Interpoſition of the *Expanſum*, Firmament of *Heaven* on the ſecond Day of the Creation between the ſuperior and inferior Waters) made as it were

Deut. ix. 1. Mat. xxiv. 30. & xxvi. 64.

its

its fartheſt Boundaries and Limits; the Waters contain'd in them being call'd, *Waters which are above the Heavens.* The very Fowls which ſtill reſide nearer to the Earth, are ſtil'd *the Fowls of Heaven*; and were originally appointed to *fly above the Earth in the open Firmament of Heaven.* By all which Places 'tis evident, That the word *Heaven* is commonly ſo far from including the Sun or Planetary *Chorus*, (much leſs the fix'd Stars, with all their immenſe Syſtems) that the Moon, our attending and Neighbour Planet, is not taken in: The utmoſt Bounds of our *Atmoſphere*, being ſo of this our *Heaven* alſo: which was the only Point which remain'd to be clear'd.

Pſal. cxlviii. 4. Mat. viii. 20. & xiii. 32. Gen. i. 20.

But here, before I proceed further, I muſt take notice of a conſiderable Objection, which threatens to wreſt this Argument out of my Hands, and indeed to ſubvert the entire Foundation of the Propoſition before us; and is, I freely own, the main Difficulty in this whole Matter; and 'tis this, That ſuch a Senſe of the Words, *World*, and *Heaven*, and *Earth*, as has been pleaded for, whatever may be ſaid in other Caſes, will yet by no means fit here, nor take in all the Extent of the *Moſaick* Creation; becauſe 'tis certain, that neither the Light, by whoſe Revolution Night and Day are diſtinguiſh'd; nor the Sun, Moon, and Stars, which are ſet in that *Firmament of Heaven* of which *Moſes* ſpeaks, belong to our Atmoſphere, or are limited by thoſe Boundaries, within which we confine the preſent Hiſtory; and 'tis equally certain, that both of them pertain to the *Moſaick* Creation, and are the firſt and fourth Days Works therein; and by conſequence, it may be ſaid, the Subject of the ſix Days Creation muſt be the whole Syſtem

Gen. i. 14, 15, 17.

Syſtem of the heavenly Bodies, or at leaſt that particular one in which the Earth is, and is ſtil'd the *Solar Syſtem.*

Now this Objection is in part already taken off by the Senſe in which the Production and Creation of Things has been ſhewn to be frequently taken in the Holy Scriptures; whereby there appears to be no Neceſſity of believing theſe Bodies to have been then originally *brought into Being*, when they are firſt mention'd in the *Moſaick* Creation.

But becauſe this is not meerly the chief, but only conſiderable Objection againſt the Propoſition we are upon; becauſe it ſeems to have been the principal Occaſion of Men's Miſtakes and Prejudices about this whole Hiſtory; and becauſe 'tis the ſingle Inſtance wherein this entire Theory, ſo far as I know, ſeems to recede from the obvious Letter of Scripture; 'twill be but proper to give it a particular Review, and clear withal, not only this, but ſeveral other like Expreſſions and Paſſages, in the Holy Scripture.

Now, in order to the giving what Satisfaction I can in this Point; let it be conſider'd, That as to the firſt Point, the Creation of Light on the firſt Day, it is not at all aſſerted in the Hiſtory; but only that then it firſt appear'd in the World:

Gen. i. 3, 4, 5. *God ſaid, Let there be light, and there was light. And God ſaw the light that it was good; and God divided the light from the darkneſs. And God called the light Day, and the darkneſs he called Night.* And, indeed, Light does not ſeem capable it ſelf of *Creation out of nothing* in a proper Senſe; tho' the luminous Body from whence 'tis deriv'd be ſo. And accordingly St. *Paul*, with

with reference to this very Day's Work, expreſſes it exceeding properly, when he ſays, that *God* at this Time *commanded the light to ſhine out of darkneſs*. Which original Commencement of the Light upon the Face of the Earth this firſt Day of the *Moſaick* Creation being not only allow'd, but particularly accounted for in the following Theory, this can be no Difficulty in the preſent Caſe. The Creation therefore of the Heavenly Bodies, the Sun, the Moon, and the Stars, is the ſole remaining Difficulty in the Caſe before us. And that would appear not ſo hard, if the Tranſlation of the Words of *Moſes* were but amended, and the Verſes hereto relating, read thus: *And God ſaid, Let there be lights in the firmament of the Heaven, to divide the day from the night; and let them be for ſigns, and for ſeaſons, and for days, and years; and let them be for lights in the firmament of the Heaven, to give light upon the Earth; and it was ſo. And God having* (before) *made two great lights, the greater light to rule the day, and the leſſer light to rule the night; and having* (before) *made the ſtars alſo, God ſet them in the firmament of Heaven, to give light upon the Earth*, &c. or, which is all one, *And God had* (before) *made two great lights, the greater light to rule the day, and the leſſer light to rule the night; he had* (before) *made the ſtars alſo: and God ſet them in the firmament*, &c. In which Rendring, 'tis only changing the *perfectum* for the *pluſquam perfectum*, and every Thing is clear and eaſy, and the Objection vaniſhes of its own accord; the Creation of the heavenly Bodies being hereby aſſigned to a former Time, and the Work of the fourth Day no other than the placing them in our Firmament; according as the Account hereafter to be given does require.

2 Cor. iv. 6.

Gen. i. 14, 15, 16, 17.

Now

Now to prove this a fair and juſt Interpretation, (to omit that the *Creation* of the Heavens and Heavenly Bodies had been related *before* the ſix Days Work) 'tis only neceſſary to obſerve, that the *Hebrew* Tongue having no *pluſquam perfectum*, muſt, and does ſometimes expreſs the Senſe of it by the *perfectum*; and that, accordingly, the particular Circumſtances of each Place muſt alone determine when thereby the Time preſent, and when that already paſt and gone, is to be underſtood. How many Knots in the Scripture the Omiſſion of this Obſervation has left unſolv'd, and which being obſerv'd, would be immediately untied, I ſhall not go about to enumerate; there being ſo many in the very Hiſtory before us, of the Origin of the World, that I ſhall not go one jot farther for Inſtances to confirm the before-mention'd Tranſlation; and which, on the Account of their Agreement in Place, will more forcibly plead for a like Agreement in Senſe alſo.

Gen. ii. 2. *On the ſeventh day God had ended his work which he had made, and he reſted on the ſeventh day from*
ver. 3. *all his work which he had made.——He had reſted from all his work which God had created and made.*
ver. 5, 6. *——The Lord God had not cauſed it to rain on the Earth, and there had not been a man to till the Ground; but there had gone up a miſt from the Earth, and had water'd the whole face of the*
ver. 7. *ground; and the Lord God had formed Man out of the duſt of the ground, and had breathed into*
ver. 8. *his noſtrils the breath of life.——And the Lord God had planted a garden eaſtward in Eden.——*
ver. 9. *And out of the ground had the Lord God made to grow every tree that is pleaſant to the ſight,*
ver. 19. *and good for food.—— And out of the ground the Lord God had formed every beaſt of the field,*

field, and every fowl of the air. - - - In all which Places the whole Context is ſo clear'd by this rendring, and ſo many ſtrange Abſurdities avoided, that there is, I think, all imaginable Reaſon to acquieſce in it.

And tho' the fourth day's work is among thoſe other, where no ſuch alteration need be made; in which therefore it may ſeem hard to allow of a ſingle inſtance againſt the uſe in the precedent and ſubſequent Context in the firſt Chapter, yet the circumſtances of that day being peculiar; the like mixture of the *perfectum* and *pluſquam perfectum* being in the ſecond Chapter, and in other places of Scripture to be obſerv'd; and a diſtinct work being ſtill hereby preſerv'd to that day, the placing the Sun, Moon, and Stars in our Firmament, which otherwiſe is after a ſort double; do all, in good meaſure, take away the force of ſuch Reaſoning, and conſpire to allow us that Interpretation before given, and thereby to ſecure the Propoſition before us from that grand Objection which ſeemed capable of cauſing ſo great an obſtruction in our courſe. But if any ſhould be diſſatisfy'd with this Anſwer, I ſhall, for their ſakes, enter deeper into this matter; and, without any aſſiſtance from what has been already ſaid, endeavour to eſtabliſh the Propoſition before us, and take away the foundation of the preſent difficulty.

And here I obſerve, That the Scripture all along accommodates its ſelf to the vulgar Apprehenſions of Men, with relation to ſuch Points of Natural Philoſophy as they were not able to comprehend; and in particular, with relation to the Site, Diſtance, Magnitude, Uſe, and Motions of the Heavenly Bodies. Tho' theſe be really very diſtinct, as well as diſtant from the

Earth, with all its Dependances; yet are they rarely, if ever, ſo conſider'd in the Holy Scriptures. They are all along there repreſented as fiery Luminaries plac'd in our Atmoſphere, and as much belonging to, and depending on the Earth as the Clouds, Meteors, or other Aerial *Phænomena:* And ſo 'tis no wonder that in the Hiſtory before us, they are included among the reſt of their Fellows, and come within the verge of the *Moſaick* Creation, notwithſtanding its proper limits be no larger than we here aſſign thereto. In order to the accounting for which things, I ſhall,

(1.) Shew the Truth of the Obſervation, in ſeveral inſtances from the Holy Scriptures.

(2.) Shew the rational Original and Occaſion of ſuch ways of ſpeaking.

(3.) Explain what, according to my Notion, muſt be meant by the Creation or Production of theſe Heavenly Bodies in the *Moſaick* Hiſtory before us; and prove ſuch a Conſtruction to be agreeable to the Sacred Stile in other Places.

(4.) Aſſign ſome Reaſons, why, in a Hiſtory of the Origin of our Earth, theſe remote and diſtant Bodies come to be taken notice of, tho' their own proper Formation did not at all belong to it.

(1.) I ſhall ſhew the truth of the Obſervation, in ſeveral Inſtances from the Holy Scriptures; namely, that the Heavenly Bodies are no otherwiſe there deſcribed than with relation to our Earth, and as Members and Appurtenances of our Atmoſphere. And this Obſervation is confirm'd by the firſt mention that is made of them

in this very Hiſtory we are upon; all the Circumſtances whereof fully atteſt the truth of what is here affirm'd of them. When God ſaid *Let there be Light*, or when the *Light* firſt diſplay'd it ſelf, notwithſtanding thoſe numberleſs advantages accruing to the whole World therefrom, none are taken notice of but ſuch as reſpect our Sublunary World. 'Twas entirely with regard to our *Light and Darkneſs*, our *Day and Night*, that all was done, as far as can be collected from the words of *Moſes*. Thus, as ſoon as the Heavenly Bodies are made, tho' they be univerſally uſeful, and belong to the entire Solar Syſtem, yet are they here *plac'd in the Firmament of* our *Heaven*, (a Phraſe us'd in this Hiſtory for our Air only) *to divide* our *Day from Night*, *to be* to us *for ſigns and ſeaſons*, *for days and years*; *to be for lights in the firmament of heaven to give light upon the earth*; *to rule over* our *day and night*, *to divide* our *light from darkneſs*. And as to the order of their Introduction, 'tis not that of their *own proper* Greatneſs or Dignity, but that of their *reſpective* Appearance and Uſes *here below*. All which is far from a full account of the real Original, univerſal Intentions, and true Places of theſe Glorious Bodies; but on the Suppoſition here made uſe of, exactly eaſy and natural. Agreeably whereto when our Air is clogg'd with groſs Vapours, ſo as to hide or disfigure their Faces to us, *The Sun is* ſaid to be *turn'd into Darkneſs*, *and the Moon into Blood*; and when ſome Aerial Meteors, call'd by their Names, and for a moment reſembling them, ſhoot and drop down in the Air; *the Stars* are ſaid to *fall from Heaven*. The Sun and Moon, as if they were two Globes of Fire and Light pendulous in our Air, and hanging over certain places, are order'd

Gen. i. 3, 4, 5.

Verſ. 14, 15, 16, 17, 18.

Acts ii. 20.

Mat. xxiv. 29.

Joſhua x. 12. to *ſtand ſtill*, the one *upon Gibeon*, the other *in the Valley of Aijalon.* The Sun is repreſented as Pſal. xix. 4, 5, 6. *ſet in a Tabernacle, rejoycing as a Giant to run his race. His going forth*, is ſaid to be *from the end of Heaven*, or the Horizon; *and his circuit unto the ends of it.* All which Expreſſions, with *Vide* Pſal. civ. 1, &c. many others through the whole Bible, plainly Iſaiah xl. 22. ſhew, That the Scripture did not intend to teach Men Philoſophy, or accommodate it ſelf to the true and *Pythagorick* Syſtem of the World. The Holy Writers did not conſider the Heavenly Bodies *abſolutely*, as they are Great and Noble in themſelves, main and glorious Parts of the Univerſe, very diſtinct from our Earth, plac'd at various and immenſe Diſtances from it, and from one another; deſign'd for, and ſubſervient to very many, very wiſe, and very comprehenſive Ends and Methods of the Divine Providence; diſpos'd in a regular order, in proportionate and harmonious Periods and Revolutions, and finally endued with mighty Powers and Influences, with reſpect to numerous and vaſt Syſtems of Beings. Under ſuch a conſideration we might have expected another ſort of Repreſentation of the Heavenly Bodies, their Original, Deſigns, Courſes, and Circumſtances, than the foregoing Texts, or their parallels, every where afford us. But if we look on them under the Notion of Neighbour-Luminaries, which are ſituate at the utmoſt bounds of our Atmoſphere, and belong, as well as the Clouds, to our Earth; which are appointed to be our peculiar Attendants, and a part of our Retinue; ſerve our ſingle Neceſſities, and every day riſe and ſet on purpoſe to provide for our Advantage and Convenience: If, I ſay, we thus look upon them, (as all Men not otherwiſe taught by

by Aſtronomy do and muſt) the Texts above-cited, and the whole current of the Holy Books will eaſily accord and correſpond to ſuch a Syſtem. And I dare appeal to any impartial and competent Judge, to which of the foremention'd Schemes the moſt obvious and eaſy Senſe of the Expreſſions of Scripture hereto relating are adapted; and whether it does not uſually ſpeak as an honeſt and inquiſitive Countryman, who no more doubted of the Heavenly Bodies, than of the Clouds appertaining to the Earth; rather than as a new Aſtronomer, who knew them to be vaſtly diſtant from, and to have nothing in a peculiar manner to do with the ſame. Which will be leſs wonder'd at, when we conſider in the next place,

(2.) The Reaſon and Occaſion of ſuch ways of ſpeaking. And here I ſhall not content my ſelf in general to obſerve, that the deſign of Divine Revelation was quite of another Nature, than requir'd a nice Adjuſtment and Philoſophick Explication of the Natural World; that the Capacities of the People could not bear any ſuch things; that the Prophets and Holy Penmen themſelves, unleſs over-rul'd by that Spirit which ſpake by them, being ſeldom or never Philoſophers, were not capable of repreſenting theſe things otherwiſe than they, with the Vulgar, underſtood them: That even, ſtill, thoſe who believe the true Syſtem of the World, are forc'd among the Vulgar, and in common Converſation to ſpeak as they do, and accommodate their Expreſſions to the Notions and Apprehenſions of the generality of Mankind: I ſhall not, I ſay, content my ſelf with ſuch Obſervations, moſt of which are uſually, and with good reaſon, inſiſted on in the preſent caſe; but rather attempt to find out the true Origin and Source of ſuch Notions

and Expreſſions, made uſe of, as by moſt other Writers, ſo eſpecially by the Sacred Ones in the Holy Bible.

God has ſo fram'd the Eyes of Men, that when the diſtance of Bodies, and their proper Magnitude is very great, they ſhall both be imperceptible to us. There is every way from our Eye a ſpherical Diſtance or Superficies which terminates our diſtinct Perception of Objects; and beyond which, all Diſtances and Magnitudes, abſolutely conſidered, are not by us diſtinguiſhable. The Clouds, tho' lying parallel to the Horizon, they are (ſo far as comes at once within our view) almoſt in the ſame Plane, yet to us they ſeem bent into a concave Figure, or kind of Hemiſpherical Superficies, almoſt equidiſtant on every Side from its Center, the Eye of the Spectator, and ſo ſeem every way to touch the Ground at a Mile or two diſtance from him. And this happens by reaſon of the Imperfection of our Sight, which diſtinguiſhing remote Objects but to a certain diſtance, beyond which the Clouds are, can have no other Idea of their Situation than ſmall and like Objects at that Spherical Superficies would excite. On which Principle 'tis certain, that till Geometrick and Philoſophick Principles rectify Men's Notions, all Bodies whatſoever beyond the Clouds, ſuch as the Celeſtial are, muſt needs be eſteem'd at the ſame equidiſtant Superficies with the Clouds, and appear among them, and by conſequence 'twould be on this account, as poſſible for the Vulgar to be perſuaded that the Clouds were vaſtly remote from, and bear no relation to this Earth, as that the Snn, Moon, and Stars were ſo; and to them as ſtrange to have found no account of the Formation of them with that of the other viſible World,

as

as the omiſſion of the *Clouds* would have been. It being impoſſible that the Sun, for inſtance, tho' ſo many millions of Miles diſtant, ſhould to us appear above one or two from us; and alike impoſſible that his bigneſs, tho' ſo many thouſand Miles in Diameter, ſhould appear to be ſo many Feet to us on Earth: As all who have any skill in Opticks very well know.

So that ſince theſe Heavenly Bodies are and muſt needs be to our Sight and Imagination at the ſame diſtance with the Clouds, and conſequently, *as to us*, are with them plac'd in our own Air; ſince their viſible Magnitude, Situation, Motion, and Habitudes, are all one *with reſpect to us*, as if they were really light and fiery Balls rowling upon or juſt above the Clouds; ſince their apparent Changes, Figures, Colour, Countenances, Effects, and Influences would be (as far as Senſe and vulgar Obſervation could determine) *on this Earth*, and *its Inhabitants*, the very ſame as were to be expected from ſuch light and fiery Balls, revolving at the preſumed diſtance; when all wiſe Men, eſpecially the Sacred Penmen, in their Writings deſign'd for the Advantage and Inſtruction of all, condeſcend ſtill to the Apprehenſions and Capacities of Men, and ſpeak of the *Being* of things as they conſtantly *Appear*; of which the Bible is full of Inſtances: All theſe things conſider'd, 'tis not to be wonder'd at, that the Heavenly Bodies are accounted Appendages of our Earth, and agreeably thereto made mention of in the *Moſaick* Creation.

(3). I ſhall explain what, according to my Notion, muſt be meant by the Creation or Production of theſe Heavenly Bodies in the Hiſtory before us, and demonſtrate ſuch a Conſtruction

to be agreeable to the Sacred Stile in other places. Now 'tis eaſy to tell what is meant by their Creation in the caſe before us, when it has appear'd that their Production out of nothing was precedaneous to the ſix days Work, and that they are wholly conſider'd as belonging to our Earth, and plac'd in our Air; *viz. Their primary being ſo plac'd; their firſt becoming viſible to Men on Earth*, or in other words, *their Original Appearing there.* I mean in plain *Engliſh*, Light is ſaid then firſt to *Be*, (for it being an effect of the Heavenly Bodies, not a diſtinct thing from them, is not by *Moſes*, as I have already noted, ſaid to
Gen. i. 3. be *made* or *Created*,) when the ſuperior Regions of the Chaos were become ſo far clear and defecate, that the Rays of the Sun in ſome degree could penetrate the ſame, enough to render a ſenſible Diſtinction between Night and Day, or that ſpace the Sun was above, and that it was beneath the Horizon. And agreeably, the Sun, Moon, and Stars, are then ſaid firſt to *Be*, or to
Verſe 14, 16. *be made*, when afterwards the Air was rendred ſo very clear and tranſparent, that thoſe Luminaries became conſpicuous, and their Bodies diſtinctly viſible, as in a clear Day or Night they now appear to us.

That this Expoſition is agreeable to the Scripture Stile, is evident by this Obſervation, That ſeveral things are there affirm'd to *Be*, in any certain manner, when only thoſe effects we feel are ſuch as they would be were they ſo indeed; and 'tis not unuſual to aſſert the *Being* of any Cauſe, when all thoſe conſequences are no otherwiſe in the World, and with regard to Men, than they muſt and would be upon its real Exiſtence, without any exacter niceneſs as to the truth of the ſame. Thus God is ſaid ſeveral times

to

to *repent* of ſomewhat he had before done, when his future Actions are the very ſame as would in Human, as well as Divine Affairs, be the certain conſequences of a proper Repentance: Thus alſo God is ſaid to be *pleas'd* or *angry* with Men, and that in a very *paſſionate* and *ſenſible* manner, when he confers ſuch great Mercies, or inflicts ſuch great Judgments, as were he really ſo, he muſt naturally do. Thus alſo *Eyes* and *Ears* are frequently ſuppos'd of God, becauſe he as certainly is conſcious of all the Actions and Speeches of Men, as if he really ſaw and heard the ſame. In a different inſtance, The Sun is ſaid to *ſtand ſtill* or *move*, tho' in propriety of Speech, as is now well known, thoſe affections ought to be aſcrib'd to the Earth, becauſe every thing, as to ſenſible appearance, is in the ſame condition as from the Annual and Diurnal Motions of the Sun, were they real, muſt, and would obtain. The Sun is ſaid to be *turn'd into Darkneſs, and the Moon into Blood*, as was juſt now obſery'd, when, without any alteration in themſelves, they appear of a dark or bloody Countenance to the Inhabitants of the Earth. Nay, which is moſt of all to our preſent purpoſe, God is then ſaid to *make all things new*, and to *create a new Heaven, and a new Earth*, when, at the utmoſt, he ſo changes the Conſtitution and State of our Earth, as to render thereby this whole Sublunary World very different from, and much excelling that which formerly appear'd. In all which, and innumerable other Inſtances, 'tis plain and evident, that the Holy Writers do not conſider merely how things *are* in themſelves, but how they are *to us*; not what is their proper *nature*, but viſible *appearance* in the World.

Apoc. xx. 5. Iſa. lxv. 17.

But here, leſt this Doctrine ſhould be abus'd,

I muſt

I muſt interpoſe this neceſſary caution, That ſuch a liberty is neither by other Authors, nor the Sacred Penmen taken on all occaſions, or in every caſe; but peculiarly when the ſublimity of the Matter, the capacities of the People, the more eaſy inſtilling uſeful Principles into Men, or ſome other weighty reaſon, requires ſuch an accommodation. 'Tis chiefly with regard to the Spiritual Nature, and ſublime way of operation in God; or ſuch Phyſical and Philoſophick Truths, as relate to diſtant, inviſible, or inacceſſible bodies; the abſolute Eſſences or Affections whereof, were not explicable to the vulgar in a plain and natural manner. In which caſes this Liberty in the Interpretation of Scripture is, with the greateſt Juſtice to be allow'd. But 'twere thence very unreaſonable to extend it to all others, or indeed to any, where the ſame, or as good Reaſons were not aſſignable. He who ſhould argue, that becauſe the Literal ſenſe of Scripture about the Corporeal Members, and Human Paſſions of the Divine Nature, is not to be ſtrictly urg'd; that therefore when he is call'd a *Spirit*, and repreſented as the Rewarder of Good, and the Puniſher of Bad Men, thoſe Expreſſions are no more to be depended on; or he who ſhould infer, that becauſe the Firſt and Fourth Days Work, the Origin of Light, and the making of the Heavenly Bodies, muſt not be ſtrictly literal, that therefore neither in the *Moſaick* Creation, ought the other four to be any more eſteemed ſo; He, I ſay, that ſhould thus argue or infer, would be very unfair and unreaſonable; becauſe he would aſſert that in one caſe, without ground, which on peculiar and weighty ones alone was allow'd in another. Thus thoſe things that are aſcrib'd to God,

which

which evidently agree to his Nature and Idea, are ſure to be literally underſtood; tho' the other which are repugnant thereto be not: And in like manner, 'tis but juſt to believe, that ſo much of the *Moſaick* Creation, as related directly to the Earth and its appurtenances, and ſo came at once within the comprehenſion of the Hiſtory, and of the capacities of the Readers, ought literally to be interpreted; tho' ſome things extraneous to the Formation of the Earth, and beyond the notice of the People, be to be taken in a different acceptation. Tho' the common uſe of Tropes and Figures make our Speech very often not to be *literal*, yet generally we can underſtand one another very well without danger of deception, or of turning plain Sentences into Allegorical Diſcourſes, in our Converſation one with another.

And 'tis evident that the Holy Books ought not to be tormented or eluded, as to their obvious ſenſe, on every occaſion, under pretence that ſome particular Texts are to be conſtrued another way. That SACRED RULE ought for ever RELIGIOUSLY to be obſerv'd, *That we never forſake the plain, obvious, eaſy and natural ſenſe, unleſs where the nature of the thing it ſelf, parallel places, or evident reaſon, afford a ſolid and ſufficient ground for ſo doing.*

Now this being preſuppos'd, I ſhall leave it to the imparrial Reader to judge, after the peruſal of this whole diſcourſe, whether I have not ſubſtantial reaſons for the preſent Expoſition; and whether therefore, any one ought to blame my receding from the Letter in this ſingle Caſe, or imagine that I give a juſt handle thereby to others, to Allegorize away this Hiſtory of the Creation, or any other parts of Scripture.

And

And I muſt here own and profeſs, That tho' I think, in caſe the common Tranſlation be receiv'd, there is an abſolute neceſſity of receding from the Letter in the point before us, and that this Venerable and Sacred Κοσμοποιία, or Hiſtory of the Creation, is otherwiſe in the higheſt degree ſtrange and unaccountable to the free Reaſon of Mankind; yet I am fully of opinion, that generally the difficulties occurring in the Sacred Books are to be clear'd, not by a greater receding from, but a cloſer adhering to the obvious and moſt natural Interpretation of the Periods therein contain'd: And that, the general nature of the Scripture Stile every where duly obſerv'd and conſider'd, ſeveral great ſcruples with relation to the Actions and Providence of God, and other things contain'd in thoſe Books, would be taken away, if we might be allow'd to recede a little from the receiv'd opinions of Men, and Placits of Syſtematical Authors; on no other condition than that, for a recompence, we keep ſo much the cloſer to the Oracles of God, and the obvious and literal Interpretation of them; and explain the Bible no otherwiſe than the plain words themſelves would appear moſt naturally to intend to any diſintereſted and unconcern'd Perſon: Of which many Inſtances might eaſily be given, were this a proper place for it. But I muſt leave this digreſſion, and return to what I before propos'd in the

(4.) Laſt place, *viz.* To aſſign ſome Reaſons why in a Hiſtory of the Origin of our Earth, theſe remote and diſtant Bodies come to be taken notice of, tho' their own proper formation did not at all belong to it. Now though many might eaſily be alledg'd for this procedure, yet I ſhall include the main I intend here to inſiſt on in the two following: (1.) The

(1.) The Advantage of the *Jews*, or ſecuring them from the Adoration of the Hoſt of Heaven, could not otherwiſe have been provided for. Now as the foundation of ſuch Idolatry is taken away by their being included in this Hiſtory, which imply'd them to be ſuch dependent and created Beings, as could have no influence of *their own*, but what were deriv'd *from God*; and conſequently were ſubject to his diſpoſal and Government; which affirm'd them to be *by Him* plac'd in the Firmament, and there ſubjected to ſuch Motions, Rules and Laws, by which they became advantageous and ſerviceable to the World: So had they been taken no notice of, they would have ſeem'd exempted Bodies, and when all Worſhip of Terreſtrial things was demonſtrated by this account of their original, to be fooliſh and abſurd, that of the *Celeſtial Bodies* would ſeem thereby to be permitted at leaſt, if not patroniz'd and recommended to 'em.

For ſince, as we have before obſerv'd, 'twas impoſſible for the *Jews* to know the real ſtate of the caſe, and to apprehend that they were vaſtly remote from, and ſo no way belonging to this Earth, or its Formation; there was no other way to apply a fitting remedy to that prevailing cuſtom of worſhipping the Hoſt of Heaven (ſo particularly caution'd by *Moſes*) but to condeſcend to the Capacities of the People, and ſuppoſing them Light and Fiery Globes pendulous in the Air, and revolving juſt beyond or among the Clouds, as they appear'd to them to do, to recount their *reſpective*, as well as the *real* Formation of the other parts of the viſible World; and aſſign them their proper place and diſtinct period in the Six days work, as well as any other

Deut. iv. 19. & xvii. 3. a

other more directly concern'd therein. The Sun, Moon and Stars, were ſuch noble and glorious Bodies, and ſo viſible, ſo remarkable, ſo uſeful parts of the World; and the Heathen Nations ſo generally doted on the Worſhip of them, that had they been entirely omitted in this particular account of Origin of things, there would have been the moſt eminent danger of this kind of Idolatry among the *Jews*; and the ſeeming approbation of that practice, to which they were ſo prone before, from the ſilence of their great Lawgiver in his Creation of the World, might probably have defy'd all diſſuaſions, and been the moſt fatal encouragement to ſo vile a Worſhip that were eaſy to be imagin'd. Any particular declaration of the reaſons of ſuch omiſſion, from the real Diſtance, Magnitude, Motions, and Deſigns of the ſaid Bodies, and how improperly they could be reduc'd within the ſaid narration (the only precaution ſuppoſable in the caſe) being more likely to diſcredit the whole Book, than overcome their prejudices; than give them a true and juſt Idea of the matter it ſelf, and ſo obviate their falſe reaſonings and practices thereupon in the forementiond Idolatry. So that 'twas abſolutely neceſſary to include the Heavenly Bodies in the *Moſaick* Creation, in order to prevent Idolatry among the *Jews*: which ſeems to have been a principal aim not only of recording this whole Narration, but of the entire *Moſaick* Diſpenſation; and therefore was in the firſt place by all means to be conſider'd and provided for.

(2.) The peculiar Nature and Circumſtances of this Hiſtory of the Creation, neceſſarily require the mention of the Heavenly Bodies, as well as of any other parts of the Viſible World. And

'tis

'tis this miſtake that has hitherto hindred any rational account thereof; that Men have either ſuppos'd it a Real and Philoſophical relation of the proper Creation of all things; or a meer Mythological and Myſterious Reduction of the viſible part of it to ſix periods or diviſions, under which mighty Myſteries were ſuppos'd to be hid, and by which the foundation of a ſeventh-day Sabbath was to be laid among the *Jews*. Now tho' ſomewhat of truth may poſſibly be contained in each of theſe different notions; yet I think 'tis undeniable, that they are neither of them to be acquieſced in, and by no means give a ſatisfactory account of the compleat Nature and Kind of this Hiſtory. That alone to which all its particulars exactly anſwer, and which is as Literal and Philoſophical as the capacities of the *Jews* could expect or reach, and did require, is, *An Hiſtorical Journal or Diary of the Mutations of the Chaos, and of the viſible Works of each Day, ſuch an one as an honeſt and obſerving Spectator on the Earth would have made, and recorded, nay and believ'd to be in all caſes the truth and the reality of the things themſelves.* Now that this Idea alone fits this Sacred Hiſtory, might eaſily be made out by the conſideration of the particulars related, and of thoſe omitted, with all the other circumſtances thereof, by no means correſponding to any other Hypotheſis; but moſt exactly to this before us; without the leaſt force offer'd to the Nature and Syſtem of the World, to the Divine Perfections, or the Free Reaſon of Mankind; and exactly ſuitable to the Stile of the Holy Books, in the mention of the *Phænomena* of the Natural World in other places. For as to that Objection againſt this Nature of the Hexameron, That it cannot be that of *An Hiſtorical Journal*,

nal, ſuch as a Spectator on the Earth would have made; becauſe 'tis ſuppos'd there was then no ſuch Spectator in being to make it; I ſhall anſwer in the words of my Reply formerly made to it, that this Argument is, I think, neither Concluſive nor True. For tho' there were no real Spectator at firſt, yet the nature of the Hiſtory might, for good reaſons, be ſuch as I aſſign notwithſtanding. But to ſpeak my mind freely, I believe that the Meſſias was there actually preſent; That He made the Journal; That He deliver'd it after to *Moſes* on Mount *Sinai*; and that from thence it appears in the front of his Pentateuch at this Day. Which Journal being ſuppos'd, (and by that time this Diſſertation is conſider'd throughout, I hope 'twill appear no precarious ſuppoſition) 'tis evident that both the appearance of Light, and of the Bodies themſelves, the Sun, Moon and Stars, (the things we are now enquiring about) muſt as certainly come within its limits, and make as remarkable Turns and Changes in the World, as far as a Spectator could judge, as any other within the entire ſix days could poſſibly do. The appearance of Light to him who never before is ſuppos'd to have ſeen ſuch a thing, and muſt have been till then incompaſs'd with the thickeſt Darkneſs; and the plain view of the Heavenly Bodies themſelves to him who before had no manner of notion of 'em, eſpecially when he had no natural means of diſtinguiſhing them from Light and fiery Balls, ſituate juſt above, and pertaining to the Clouds; muſt as certainly have inferr'd a new Creation, and under ſuch a notion have been recorded in their due place in the Journal beforemention'd, as any other whatſoever; and their order, poſition, and uſes would naturally be re-

counted

counted no otherwiſe than we now find them in the *Moſaick* Creation. From which Conſideration I think 'tis not at all ſurprizing, that theſe Parts of the viſible World, how remote and ſeparate ſoever they be from our Earth in themſelves, are yet included in this Hiſtory before us; and have their diſtinct Periods in the ſix Days Work; tho' at the ſame time the Κοσμοποιία it ſelf doth properly relate to the formation of the Sublunary World only.

IV. I prove that the Hiſtory before us, extends not beyond the Earth and its Appendages, becauſe that confuſed Maſs, or rude Heap of Heterogeneous Matter, which we call the *Chaos*, whence all the ſeveral Parts were deriv'd, extended no further. It will here, I ſuppoſe, be allow'd me, that the ancient *Chaos*, ſo famous among the old Philoſophers, and ſo evidently referr'd to by *Moſes*, was the entire and ſingle Source or Promptuary of the ſix Days Productions; and that conſequently nothing ought to be eſteem'd a Part of that *Creation*, but what, in its Rudiments and Principles was ſo of the *Chaos* alſo; and this *Poſtulatum* is ſo agreeable to *Moſes*, as well as to all the ancient Accounts of the *Chaos*, and I think ſo ſuitable to the Sentiments of moſt Men, that I ſhall, without farther Proof, ſuppoſe it granted me, and betake my ſelf immediately to the other Branch of the Argument, and endeavour to evince, that the *Chaos* was ſo far from comprehending the entire Matter of the Univerſe, nay, or of the Solar Syſtem, that it reach'd not ſo far as the Moon, nor indeed any farther than that Terraqueous Globle we now inhabit, with ſuch Bodies as are immediately contiguous and appertaining thereto. Which I think the following

lowing Arguments will ſufficiently demonſtrate.

(1.) If we appeal to external Nature, and enquire what confuſed Maſſes or *Chaos*'s either at preſent are, or ever, within the Annals of Time, were extant in the viſible World, we ſhall diſcover no Footſteps of any ſuch Thing, excepting what the *Atmoſphere of a Comet* affords us. If therefore, without the Allowance of precarious and fanciful Hypotheſes, relying on no known *Phænomena* of Nature, a Comet's Atmoſphere be the ſole Pretender; if moreover the ſame Atmoſphere gives a Juſt, Adequate, Primitive, and Scriptural Idea of that ancient *Chaos*; if it anſwers its particular *Phænomena*, recounted by Sacred or prophane Hiſtory; if it prove a peculiarly fit Foundation of ſuch an Earth as ours is, and is extraordinarily adapted to ſuit, and account for its preſent and paſt *Phænomena*; all which ſhall be prov'd hereafter; I think we may ceaſe our farther Enquiries, and with the higheſt reaſon and juſtice conclude, That a Comet, or more peculiarly the Atmoſphere thereof, was that very *Chaos* from whence that World aroſe, whoſe Original is related in the *Moſaick* Hiſtory: And with equal Reaſon and Juſtice be ſatisfy'd, (which is but a certain conſequent thereof) that not the innumerable Syſtems of the fix'd Stars, not the narrower Syſtem of the Sun, nay, nor the Moon her ſelf, but our Earth alone, was the proper Subject of the *Moſaick* Creation. Which Concluſion will be farther eſtabliſh'd by the Coincidence of the ſeveral Days Works recounted by *Moſes*, with thoſe Natural and Orderly Mutations which, in the Digeſtion and Formation of a Planet from a Comet's Atmoſphere, would mechanically proceed therefrom, as hereafter will appear.

Vid. *Hypoth.* 1.

(2.) The

(2.) The *Chaos* mention'd by *Moſes* is by him expreſly call'd *The Earth*, in Contradiſtinction to *The Heavens*, or the other Syſtems of the Univerſe; and all its Parts taken notice of in the Sacred Hiſtory, appear, by the following Series of the Scripture, to belong to our Earth, and no other. The Words of *Moſes* are, *In the Beginning God created the Heaven and the Earth*; *and the Earth was without Form and void, and Darkneſs was upon the Face of the Deep*; *and the Spirit of God moved upon the Face of the Waters.* Gen. i. 1, 2. Where I think 'tis plain, as has been already obſerv'd, that when the Author comes to the *Chaos* or Foundation of the ſix Days work, he excludes the Heavens from any Share therein, and calls the *Chaos* it ſelf, *An Earth without form and void*, with *Darkneſs upon the Face of its Abyſs*; and this all ought to grant: Theſe being the very Words from which 'tis concluded that the Heathen *Chaos* was no other than what *Moſes* deriv'd the World from.

And that the *Chaos* is here confin'd to *the Earth*, will ſure appear more credible by the latter Branch of this Argument, which obſerves no other Parts to be mention'd belonging thereto, than ſuch as the ſucceeding Series of the Holy Scriptures, as well as the known *Phænomena* of Nature ſhew to have afterward belong'd to our Earth and no other, *viz.* An *Abyſs* or Deep, and *Waters*: Both of them frequently mention'd in the Holy Books, and now actual Parts of the preſent Globe, as will appear hereafter.

So that ſince *Moſes* calls his *Chaos* expreſly *the Earth*; ſince by the Coherence of his Diſcourſe he excludes the *Heavens*, taken in a large and proper Senſe, from the ſame; ſince, laſtly, he mentions no other Parts of this *Chaos* than ſuch

as afterward, and at this Day, are Parts of our Earth; 'tis ſomewhat unaccountable, and like a kind of Fate upon Commentators, that they ſhould unanimouſly reſolve to make this *Chaos* of ſo extravagant a Compaſs as they too incongruouſly do; and that they ſhould agree in it ſo univerſally, tho' without any Warrant from, nay, contrary to, the obvious Senſe of the Text it ſelf, and the plain Drift, Coherence and Deſcription of *Moſes* therein. I know it will be ſaid, the Firſt and Fourth Days Works, (the Origin of Light, and of the Sun, Moon and Stars) neceſſitated ſuch a Suppoſition, and gave juſt Cauſe for the common Expoſition. Which as I believe to have been the true Occaſions of all ſuch miſtaken Gloſſes, ſo I think them far from juſt and neceſſary ones; and if what has been already ſaid has clear'd thoſe Difficulties, there can be no Reaſon to reject the Cogency of the preſent Argument, but a great deal to reſt ſatisfied in it; and to confeſs it no leſs Unſcriptural, than 'tis Abſurd, to expect from this ſingle *Chaos*, a Sun, Moon, and Syſtems of fix'd Stars, as hitherto the World has commonly done.

(3.) The *Moſaick* and ancient *Chaos* could not include the Sun or fix'd Stars, becauſe juſt before the Extraction of Light from it, as 'tis uſually explain'd, it was Dark and Caliginous; which on ſuch a Suppoſition is not conceivable. A ſtrange Darkneſs this! where more than ninety nine Parts of an Hundred (whether we take in the entire Syſtem of the World, or the Solar Syſtem only) appear to be fiery Corpuſcles, and the very ſame from whence all the fix'd Stars, or at leaſt the Sun, were conſtituted; and are now the Fountain of all that Light and Heat which the World has ever ſince enjoy'd. Let every unbiaſs'd

Vid. *Lem.* 36. *infrà.*

biaſs'd Perſon judge, how dark that *Chaos* could be, where the Opake and obſcure Parts were ſo perfectly inconſiderable in Compariſon of the Light, the Active, and the Fiery ones. So that on this Hypotheſis, the State of the *Chaos* muſt have been exceeding Light, Hot, and Fiery, before the firſt Day's Work; when it was on the contrary, according to all Antiquity, Sacred and Profane, Dark and Caliginous. 'Tis true, upon the Separation of the Particles of Light, (the Buſineſs, in this Hypotheſis, of the Firſt Day) the *Chaos* would become Obſcure and Dark enough, at the ſame time that the Sun, or fix'd Stars, were collecting their Maſſes ſo lately extracted, and were growing Splendid and Glorious. But this is to contradict the Hiſtory, according to which the Light, on the firſt Day, is conſider'd with relation to the *Chaos*, and its diſtinguiſhing Night and Day *There*; not as it was collecting into Bodies of Light without it, (which rather muſt belong to the Fourth Day's Work;) when by this Account 'tis evident, that this Day is the peculiar Time for the moſt pitchy Darkneſs poſſible; for when all the Light was juſt ſeparated from the *Chaos*, the moſt Caliginous Night muſt certainly enſue. So that unleſs we can change the Order in *Moſes*, and prove that the *Chaos before* the Firſt Day's Work was all over Light, and on the Firſt Day cover'd with the thickeſt Darkneſs, we in vain pretend to juſtify the vulgar Opinion, and include the Sun or fix'd Stars among the other Matter of the *Chaos*.

Beſides, ſince Heat is the main Inſtrument of Nature in all its Separations of Parts, and Productions of Bodies, 'tis ſure a very improper Seaſon juſt then to extract the light and fiery Corpuſcles out of the *Chaos*, when the Formation

of Things began, and there was the principal Occaſion for their Preſence and Efficacy, that ever was, or could poſſibly be. A ſtrange Method of Generation! To take away the Cauſe at the very Inſtant when it was to produce its Effects; and to recount the Effects not before, but as ſoon as ever the Cauſe is taken away! But to proceed.

(4.) The now undoubted Property of the univerſal Gravitation of Matter, contradicts and overthrows this Fancy of the heavenly Bodies having been originally included in, and at the Creation extracted from the *Chaos* of which we are ſpeaking. For on this Hypotheſis, in caſe they once were mingled with the Parts of the Earth, ſince they are now at immenſe Diſtances from it, they muſt have fled off every Way from their former Place, and in a ſmall Space of time have thrown themſelves to thoſe vaſtly remote Seats which they have ever ſince poſſeſs'd. Now if inſtead of the *vis centripeta*, a *vis centrifuga*; inſtead of mutual Attraction, a mutual Repulſe or Avoidance were found to be the ſtanding unchang'd Law of Nature, and Property of Matter, this might have look'd like a poſſible, at leaſt, if not a probable Hypotheſis; and the whole Order of Nature ever ſince need not have been contradicted in this primary Formation of Things. But ſince the contrary Force, that I mean of mutual Tendency, Attraction, or Gravitation obtains, and that, as far as we have any means of knowing, univerſally, which Sir *Iſaac Newton* has demonſtrated, there is no Room or Foundation in Nature for ſuch an Imagination.

'Tis by no Means impoſſible, that all the Bodies in the Univerſe ſhould approach to one another, and at laſt unite in the common Center of Gravi-

Gravity of the entire Syſtem: Nay, from the Univerſality of the Law of Gravitation, and the Finiteneſs of the World, in Length of Time, except a miraculous Power interpoſe and prevent it, it muſt really happen. But by what Law of Nature, or Property of Bodies, they, when once conjoin'd, (as thoſe I now oppoſe muſt affirm) ſhould be ſeparated, 'tis hard to conceive. *Vid.* Corol. 1, & 2. Lem. xi. infrà.

Which Difficulty is increas'd by the prodigious Velocity of their Motions; ſince, according to the vulgar Hypotheſis, but a few Hours can be allow'd the Heavenly Bodies to waſt them to thoſe immenſly, yet variouſly diſtant Seats, which they were immediately and for ever after to poſſeſs. All which harſh and ungrounded Fictions are entirely avoided, and all things repreſented according to the known Laws of Matter and Motion, in that natural and eaſy Hypotheſis we take; and which therefore is as conſonant to, as the other is averſe from, the Make and Conſtitution of the Natural World.

(5.) This Fancy, that the Heavenly Bodies proceeded originally from the Terreſtrial *Chaos*, and caſt themſelves off from it every way, ſuppoſes the Earth to be the Center of the World, or of all that Syſtem of Bodies; and they plac'd in a Kind of Circumference every way about it. How well ſoever ſuch a Notion would agree with the Vulgar or *Ptolemaick* Syſtem of the World, I fear the *Pythagorean*, which has forc'd its Reception, and is univerſally receiv'd by Aſtronomers, will not at all ſquare therewith. In that Account which would only include the Planetary or Solar Syſtem within the ſix days Creation, the Sun, its known and undoubted Center, ſeems the only proper Place for ſuch a *Chaos* as were to be the common Source and Promptuary of

the whole: But in the vulgar Account, where all the fix'd Stars and Planets of the Univerſe are to be ſuppos'd at a Center together, we, who know not the Bounds and Circumference of the World, cannot be ſuppos'd able to pitch upon a Center proper for ſo immenſe and ſtrange a *Chaos*. Only one may venture to ſay, that the Earth, a ſmall moveable Planet, revolving about the Sun, is an ill-choſen one however.

And now upon a Recollection and View of this whole Argument, I do not queſtion but an unprejudic'd Perſon, who knew nothing of the Sentiments of Commentators, or of the Opinions of the Vulgar; and who had only been converſant in the Works and Word of God, the Book of External Nature, and the Book of Scripture, would eaſily find the Bounds of the *Moſaick* Creation; and on a little Conſideration and Compariſon of the Sacred and Prophane Accounts of the Primitive *Chaos*, with the preſent Nature and Situation of the Heavenly Bodies, would quickly be convinc'd that our Earth alone were therein concern'd; he could ſcarce be ſuppos'd once to dream that the Origin of the Sun and Planets, much leſs of innumerable Suns and Planets, and of the entire Univerſe, was there accounted for. Such Notions, how general ſoever, are not the Reſult of Nature and Scripture carefully conſider'd and compar'd one with another, but the Effects of Ignorance of the Frame of the World, and of the Stile of Scripture; of an Unacquaintedneſs with the *Works*, and thence an Inability of judging concerning the *Word of God* relating to them; or indeed commonly of a certain μικροψυχία, or Narrowneſs of Soul, which Temper, Education, Converſation, Application to ſome particular Studies and Authors, with a Strangeneſs

neſs to free and generous Enquiries, ſome or all have been the unhappy Occaſion of. In ſhort, 'tis becauſe Men are not able to give themſelves or others a ſatisfactory Account of ſuch things, that they are forced to fall into a beaten Path, and content themſelves with thoſe poor and jejune Schemes, which, when carefully examin'd, prove neither Rational nor Scriptural, but are as perfectly contradictory to ſound Philoſophy, as they are to the genuine Senſe of thoſe very Texts on which they build their Concluſions. Every unbiaſs'd Mind would eaſily allow, that like Effects had like Cauſes; and that the Bodies of the ſame general Nature, Uſes, and Motions, were to be deriv'd from the ſame Originals; and conſequently, that the Sun and the fixed Stars had *one*, as the Earth, and the other Planets *another* Sort of Formation. If therefore any free Conſiderer found that one of the latter Sort, that Planet which we inhabit, was deriv'd from a *Chaos*; by a Parity of Reaſon he would ſuppoſe, every one of the other to be ſo deriv'd alſo; I mean each from its particular *Chaos*.

Nay, truly, I might carry this Matter ſtill higher, and if one Planet muſt be made Parent to another, juſtly claim the principal Place for *Jupiter*, probably above 200 times as big as our Earth, and the largeſt and moſt conſiderable of all the Sun's *Chorus*; and ſo with greater Shew of Probability aſſert, that from its *Chaos* any of the other Planets were deriv'd, than it ſelf from theirs. Particularly the Earth is ſo ſmall a Globe, that in Point of Dignity or Origination, very many of the Celeſtial Bodies may moſt fairly claim the Precedence of it, and curb its aſpiring Pretenſions to any ſuch mighty Prerogatives above its Fellows. There is in reality no Occaſion

for

for any ſuch childiſh Reaſoning on either Side; and every one of the Planets (eſpecially the Moon, ſo exactly reſembling her Siſter Earth) ought to be deduc'd from a diſtinct *Chaos* of its own, as well as that particular one which Providence has allotted for the Seat of Mankind. And 'tis not to be queſtion'd, were we as well acquainted with the Nature, Conſtitution, and Uſes of the other Planets, with their various Inhabitants, and the ſeveral Methods of Divine Providence relating to 'em all as we are with our own, we ſhould not be backward to allow 'em every one a proportionable Share in the Care of Heaven, and a like Conduct in their Origins and Periods, as the Earth, on which we dwell, can boaſt of. We ſhould, 'tis probable, ſoon underſtand, that, (bating the ſtupendous and miraculous Diſpenſation of the Goſpel by the *Meſſias* Θεανθρωπος) as well the Moral, as the Natural Hiſtories of theſe Worlds; thoſe of their firſt Riſe out of *Chaos's*, of their ſeveral Changes, Revolutions and Cataſtrophes, with regard to the inanimate, the animate, and reaſonable Beings, both as to the Dignity of the things themſelves, and their Newneſs to us, would equally deſerve the View and Conſideration of inquiſitive Minds, with any like Accounts relating to our own Earth; and we ſhould eaſily ſatisfy our ſelves, that that ſingle *Chaos* of which we now ſpeak, the Seminary of our preſent Earth, was ſo far from extending it ſelf to the Sun, or fix'd Stars, that not the leaſt ſecondary Planet in the Solar Syſtem could be contain'd therein.

V. The *Moſaick* Creation is confin'd to our Earth, with its Appurtenances, becauſe otherwiſe the Time of the Creation of each Body was

ſo

ſo extremely diſproportionate to the Work it ſelf, as is perfectly irreconcilable to the Divine Wiſdom of its Creator, and to the Accounts of the Works themſelves as they are ſet down by *Moſes*.

In order to the *Reader's* perceiving and admitting the Force of this, and ſome following Arguments, I muſt premiſe ſome things touching the Nature of ſuch Reaſonings, and how far they may be made uſe of without any juſt Imputation of Boldneſs, Irreverence, or preſumptuous Stinting and Determining the Divine Actions.

And here I freely confeſs, That 'tis not neceſſary in all Caſes that we ſhould comprehend the Reaſons of the Divine Actions or Providence before we can be under an Obligation to believe them. They may be hid from us on ſeveral Accounts, tho' the things themſelves be plain in Scripture. Under which Circumſtances, I heartily own the ſtricteſt Obligation to yield our unfeigned Aſſent to what God has clearly reveal'd, notwithſtanding we cannot ſee the entire Accountableneſs thereof to our imperfect Underſtandings. But then, 'tis one thing to be *above*, and another to be *repugnant* to our Reaſon; 'tis one thing to be *beyond* the Comprehenſion of, and another directly *contradictory* to our Human Faculties. Beſides, the Clearneſs or Obſcurity of the Revelation is here very conſiderable: The former Caſe reſolves our Aſſent into the Divine Veracity; but the latter may only be the Miſtakes of Human Deductions; and by Conſequence, tho' our fallible Reaſonings be ſuperſeded by the firſt, yet there is room for them in the ſecond. I believe, for Inſtance, and am oblig'd ſo to do, that our Saviour Chriſt is truly Θεάνθρωπος, God and Man, becauſe I find it every where plain and evident

evident that the Stile, Titles, Attributes, Actions aſcrib'd to the Son through the whole Bible, and all Chriſtian Antiquity, demonſtrate him to be the very next Being to the Supreme God, and quite ſuperior to all ſubordinate Creatures; or to be *God the Word* who was incarnate for the Salvation of Men; tho' it may be I am not able to give a clear Account of every thing relating to his Perſon or Incarnation. But I do not think my ſelf equally oblig'd to believe the Doctrine of abſolute and uncondition'd Reprobation, becauſe the Proofs alledg'd for it are far from being clear, and becauſe 'tis not ſo properly *above*, as *contradictory* to the moſt evident Reaſon. And this comes neareſt to the preſent Caſe; in which, neither can any one juſtly aſſert the Plainneſs of the Revelation on the Side of the common Scheme, nor alledge the Sublimity of the Subject, on account whereof it might be fairly ſuppos'd above the Reach of our finite Capacities. The Scripture, as I take it, is evidently for, at leaſt muſt be own'd not evidently againſt this reſtrained Senſe of the *Moſaick* Hiſtory before us; and the Subject it ſelf is finite and limited, and ſo within our ken, and capable of our Comprehenſion: On which Accounts ſuch Arguments as follow ought to have their place, and if conſiderable, their Force and Influence on our Faith alſo, and go a great way to determine ſuch a Diſpute as we are now upon.

And 'tis ſure not impoſſible, within certain Bounds, for a conſidering Man to determine what is rational, wiſe and prudent; what is conſonant to the Nature of things; what is ſuitable to Forecaſt and Contrivance; what is, in moſt Caſes, proper, decent and becoming, even with relation to the Divine Operations in the World.

We

We naturally, in the reflecting on the Syſtem of External Nature, obſerve many Marks and Tokens of the Wiſdom and Art, the Skill and Artifice of the Great Creator; which ſuppoſes that we are in good meaſure competent Judges in ſuch Matters. And indeed, 'tis but changing the Scene, and conſidering what we naturally pronounce to be rational and orderly, fit and proportionable among Men; what will become a wiſe General or Stateſman, a skilful Builder and Architect, nay, an ordinary Workman or Artificer, in uſual and obvious Caſes: What on the one hand are the Tokens of Foreſight and Prudence; and on the other, of Heedleſneſs and Folly, in the common Affairs of Life; and we ſhall not wholly be to ſeek what to think of ſeveral analogous Actions relating to God himſelf: Due Allowance being every where made for that infinite Diſtance, and different State and Management of the Supreme Governor of the World, from thoſe of all finite Beings, depending on, and ſubject to him. Thus we collect our Idea's of the Divine Attributes, by conſidering what is good, great, valued and eſteemed, lovely and venerable among Men, and aſcribing every ſuch thing to the Divine Nature; who being the Origin of them all, muſt contain 'em within himſelf in a higher and more eminent manner. By accumulating all Things that appear Perfections in Men, or other Creatures, and removing all Imperfections neceſſarily adhering to them, we arrive at the Notion of an Infinitely Perfect Being; which is but another Name for *God*; and whom, on that account, we juſtly think the proper Object of our Worſhip and Adoration.

Since therefore our very Ideas of the Divin Properties are owing to, and depend on, our Co e

ſi n-

dera-

ſideration of thoſe leſſer degrees of the ſame which we obſerve in Men; and ſince the Reaſon why the contrary Properties are not by us aſcribed to him, is, becauſe we find that in Men they argue Imperfection: What is a Sign or Effect of ſome degree of Perfection in Men, muſt alſo be acknowledg'd a Sign or Effect of a like Perfection in God. And what is a Sign or Effect of Imperfection in Men, muſt alſo be own'd, if it were ſuppoſable, a Sign or Effect of a like Imperfection in God. Thus, for inſtance, we certainly gather, that God cannot be properly pleas'd or delighted in the Miſery and Torment of his Creatures, where yet the Juſtice and Wiſdom of his Government may require him ſeverely to puniſh 'em; Becauſe we cannot but eſteem it an odious Vice, and baſe Imperfection in a Judge on Earth, in like Caſes, to be ſo affected; and whether we will or no, we look upon it as an Inſtance of Cruelty and Barbarity of Diſpoſition to reliſh and taſte a Sweetneſs, in the Cries and Groans of condemned and dying Malefactors. In like manner we juſtly conclude, God cannot *Impoſe* on Innocent Creatures, no not by ſuch Wiles, Stratagems, or other Methods of Colluſion, wherein yet direct and downright Falſhood were avoided; becauſe we find a ſpontaneous Averſion and Indignation ariſes in our Minds, when ſuch Tricks and Shams are diſcover'd among Men. And by the ſame way, and equal Force of reaſoning, we may collect, that God cannot, in the Formation or Diſpoſition of Things, no more than in other Caſes, act abſurdly or diſagreeably to Reaſon; diſproportionately or unſuitably to the Nature of Things; immethodically without Rule and Order, or fooliſhly without Drift and Deſign, according as an impartial and conſidering Man, who were duly

acquainted with the Syſtem of Nature, would judge and determine in the Caſe. And conſequently, 'tis a diſhonourable Reflection on God, to aſcribe to him thoſe Things which to the free Faculties of Mankind would amongſt us be look'd on as Marks of Unskilfulneſs, Imprudence, or Folly, in parallel Caſes; and for which meer Men could not eſcape the moſt ſevere and indecorous Imputations.

Put the Caſe that I ſhould chance to obſerve a certain Maſter-builder in his parcelling out the ſeveral diſtinct Tasks of the Under-workmen, and apportioning the Time he would allow to the finiſhing of the whole; and that I perceiv'd 9 Parts of 10 were to be done in one Day, but the other ſingle Part had a Month's Space aſſign'd to it; and yet 9 Parts of 10 of the entire Number of Workmen were to club together for that Work to be done in the Month, while only every tenth Man were permitted to aſſiſt at the Day's Task: Were it poſſible to ſuppoſe ſuch a Caſe on Earth, I need not inform you what Opinion the Spectator would have of the Abilities or Prudence of the Architect. Or, Put the Caſe, that an ordinary Husbandman, who had two Plots of Ground, the one of a ſcore Feet in Circumference, not very promiſing or capable of Cultivation above others, the other of a thouſand Acres of good Land, and very fit for Tillage or Improvement; ſhould ſpend four or five Days every Week about his little ſpot of Indifferent Ground, and allot no more than the remaining one or two for the Care and Management of the other ſpacious Field: 'Tis eaſy to imagine under what Notion and Character the Plowman would paſs in the World. Or laſtly, Suppoſe one ſhould light upon an Hiſtorian, who undertook

took to give a compleat and full Account of ſome large and ſpacious Country, with the many Noble Kingdoms, Principalities, Lordſhips, and Governments therein contain'd ; and upon Peruſal, nothing was to be found mention'd in any particular manner, but a certain little and remote Iſland (ſo inconſiderable, that the Generality of the Inhabitants of the Main Land never heard ſo much as its Name) which indeed was deſcrib'd carefully, and its ſeveral Circumſtances diligently accounted for ; but as to the reſt, there appear'd no more than at the Concluſion of a Chapter, two or three Names of its principal Diviſions, and ſome Advantages which one or two of their Maritime Towns afforded this ſmall Iſland, and then all was concluded. Now he that ſhould take this for a juſt and adequate Hiſtory of the whole, and earneſtly contend for the Compleatneſs and Perfection of the Work, would be certainly taken for a *ſtrange* Perſon ; or rather would be thought in Jeſt, and to deſign the real Expoſing of the Folly and Ridiculouſneſs of the Publiſher thereof. Theſe familiar Inſtances amongſt Men, ſhew what *unbrib'd* and *untainted* Nature inſtantaneouſly pronounces in ſuch Caſes ; and thereby direct us what we ought to judge in parallel ones, in which God himſelf is directly intereſted.

Where the Change of the Perſon is ſo far from altering, that it exceedingly confirms theſe Dictates of Right Reaſon, and makes thoſe Suppoſitions which were *harſh* and *incredible* with regard to Men, to become *intolerable* and *impious* when apply'd to the Deity. Whatſoever bears the Characters of Truth, Juſtice, Order, Wiſdom, and Contrivance, which I cannot but expect from good and skilful Men ; I undoubtedly require and believe of the Divine Majeſty without the leaſt

Heſita-

Heſitation, in the higheſt Degree and ſupremeſt Meaſure imaginable. But whatſoever looks like Falſeneſs, Injuſtice, Confuſion, Folly, and a wild Diſproportion or Precipitancy among Men, and which I am difficultly induc'd to imagine of frail and imperfect Creatures like my ſelf, I am much more hardly perſuaded, or rather find it impoſſible to believe of God. Thoſe very Faculties, by which I am enabled to diſtinguiſh and paſs a Sentence in theſe Matters, are deriv'd from God, and Part of the Divine Image on the Soul of Man; and ſhall I ſo oddly make uſe of them, that what I could not be brought to credit of any one of my Neighbours, it were ſo uncouth, abſurd, and prepoſterous, I freely admit and contend for when aſcrib'd to my Creator? The Mind of Man, if it have leave to reflect freely, can no more acquieſce in any Scheme of the Works of God, where nothing of Forecaſt, Order, *Decorum*, and Wiſdom is conſpicuous; where every Period appears puzzling, immethodical, diſproportionate, and ill-diſpos'd, (and ſuch is that of the vulgar Idea of the *Moſaick* Creation, as will be prov'd preſently) than it can believe Contradictions; or that God is an infinitely wiſe and perfect Being indeed, but yet at the ſame time acting what, in the common Senſe of Mankind, argues the greateſt Folly and Imperfection; which entirely and with plenary Satisfaction to do, is certainly impoſſible. There is ſomewhat in the Human Soul that has too quick a Senſe of the Decency and Fitneſs of things, and withal too deep a Veneration for the adorable Majeſty of God, to be *eaſy under*, though it may be *overborn with* ſuch Notions. It cannot be willing to believe *that* of it Wiſe and Glorious Creator, which for another to believe of it

ſelf would be eſteem'd as an high Indignity.

'Tis true, there is ſo great a Difference between the Compaſs of the Divine, and the Straitneſs of Human Knowledge; between the State of Creatures and of the *Creator*, *Bleſſed for evermore*; there may be ſuch an Incapacity in us to reach, or unfathomable, yet wiſe Reaſons for God to hide ſome things from us; not to inſiſt on the Divine Prerogative, which frees him from the Obligation of giving an Account of every thing to any of thoſe Beings he has made; that we ought to be very wary of arguing from Man to God, without due Allowance for theſe Conſiderations; and conſequently, mighty cautious of affirming or denying whatever is aſcrib'd to him from ſuch a Compariſon. In particular, where-ever a clear Revelation interpoſes, we are bound to quit our fallible Reaſonings, and fully to acquieſce in ſuch a Deciſion: It being impoſſible for *God* to *Lye*, but by no means ſo, that *we* may *be miſtaken*.

But then this neceſſary Prudence and Warineſs is chiefly, if not only, concern'd in ſublime and myſterious Points; concerning the incomprehenſible Nature, or unſearchable Providences of God; which Doctrines are ſometimes ſo much above the preſent Scene of Things; ſo remote from the Notions and Affairs of this World; relate to and depend upon ſuch other Syſtems of Beings or Circumſtances of the Inviſible World; that we ought not raſhly to paſs our Judgment on them; but wait till our Souls become ſo improv'd, and our Underſtandings ſo enlightened in a future State; till our Means of Information, and Opportunities of looking through the whole Chain and Syſtem, be ſo many more than now they are, that we may juſtly be ſuppos'd more *competent Judges*,

and

and *equal Arbitrators*, than at preſent the Imperfection of our Condition will permit us in Reaſon to pretend to.

But this being again precaution'd, to prevent any Miſconſtruction or Abuſe of this Reaſoning, I cannot but ſay, that ſince 'twill be hard to prove the Caſe before us to be of ſo exalted a Nature as to tranſcend our Faculties; and perhaps ſtill harder to prove the Plainneſs of the Revelation on the Side of the common Expoſition, I am fully perſuaded, that while the Perfections of God are, as to our Aſſent, deduc'd from their Effects, they may in good Meaſure, within certain Bounds, as was before diſcours'd, be judg'd of by what is obſervable among Men. And as whatſoever is worthy, good, and valuable among our ſelves, is rightly own'd as an Efflux and Gift of God; ſo whatſoever is prepoſterous, abſurd, or diſorderly, whatſoever is unworthy, baſe, or deſpicable in human Affairs, cannot without great Indignity be believed of him; and where we have no other Ways of determining, ſuch Reaſonings ought to be perſuaſive and decretory.

Now therefore, all this being ſaid by Way of Introduction to this, and ſome following Arguments, let us apply it to the Caſe before us; and ſuppoſing, (which yet I need not allow) that the Matter were indifferent on all other Conſiderations, let us ſpeak freely whether ſuch a Method, ſuch Time, and ſuch Proportion of the ſeveral Parts as the ordinary Scheme of the Creation ſets before us, be in any Degree ſo well contriv'd, and ſuitably diſpos'd, as I ſay not a Divine, but a mere Human Architect may be ſuppos'd the Author of. I need not here give a particular Account of the vulgar Expoſition of the firſt Chapter of *Geneſis*: 'Tis ſufficiently known as to the

main Parts of it. But the Diſproportions I would take notice of in it under this Head are theſe Three:

(1.) The *Length of the Day* uſually aſſign'd, is wholly *diſproportionate* to the Buſineſs done upon it.

(2.) While the Works of each of the other Days are *ſingle, diſtinct, and of a Sort*, the Third Day has two *quite different*, nay, almoſt *incompatible* Works aſſigned to it.

(3.) And principally, The Earth with its Furniture, how inconſiderable a Body ſoever it be, takes up *four entire Days*, at leaſt, of thoſe *ſix* which were allotted to the whole Creation; whilſt the Sun, Moon and Stars, thoſe vaſtly greater and more conſiderable Bodies, are crowded into *one ſingle Day* together.

(1.) The Length of the Day uſually aſſign'd of Twenty four Hours is wholly diſproportionate to the Buſineſs done upon it. This plainly appears by the Hiſtory it ſelf; where, to omit other Inſtances, the whole Train in the Generation or firſt Production of Animals, has no longer a Space afforded to it; when yet all Experience ſhews, that a much longer is neceſſarily requir'd, and has obtain'd in all the ſubſequent Ages. Now I do not queſtion but it will be confeſs'd by all, that according to the conſtant Proceſs of Nature, this Time is utterly inſufficient for this Purpoſe: But what will be ſaid is, that a Divine Power immediately interpos'd, and either form'd every Thing in its grown and mature State; or at leaſt accelerated and haſten'd the Courſe of Nature, ſo as to enable her to perfect each Creature in ſo ſhort a Space; and that conſequently, no Straitneſs of Time ought to be alleg'd on this Account. In anſwer whereto I freely grant, that God *can* produce all Things in their moſt per-

perfect State, in a Moment; and if that could be prov'd to have been the Method here, this Exception were of no Validity. But as on ſuch a Suppoſition 'tis ſtrange that *ſix entire and ſucceſſive Days* ſhould be requiſite to, or pitch'd upon by an infinite and unlimited Agent, when the *inſtantaneous Creation* of the whole appears in this Caſe more agreeable to the Dignity and Power of the Creator; ſo I am pretty ſecure that this Hypotheſis, how common ſoever, is repugnant to the *Moſaick* Hiſtory. The Sacred Penman does there aſcribe indeed the Origin of every Thing to the Divine Power; yet no otherwiſe than the like would be, and is done by the Holy Writers afterwards, nay, by every body at this Day; when yet the conſtant Method of Generation is exactly obſerv'd. If any of us were ask'd, Who made us? We ſhould ſoon anſwer, God; without the leaſt Imagination that we were excuſed from that nine Month's Abode, and gradual Growth in our Mother's Womb; which every one by the general Rule and Method of Nature is oblig'd to undergo. Which appears in the preſent Caſe to be the Intention of the Holy Writer, becauſe he makes theſe very Animals Productions of the Water and Earth, as well as the proper Effects of the Divine Power; as hath been obſerv'd already on another Occaſion. And thoſe who deny this gradual Generation according to the Courſe of Nature, muſt, without Reaſon, recede from the Letter of *Moſes*, and all the old Traditions of the Heathen Philoſophers, and that when by ſo doing they render this Sacred Hiſtory more difficult and unintelligible than it really is. Gen. i. 20, 21, 24.

But if inſtead of *Immediate Creation*, it be ſaid that 'twas only a *ſupernatural Acceleration* of natural Cauſes, without any other Alteration of the

Proceſs; which is I think the only probable Evaſion, and the faireſt Suppoſition of all other; I reply, That this is *gratis dictum*, without any Foundation in the Scripture, and ſo as eaſily denied as aſſerted; it is introduc'd only to ſalve the Shortneſs of Time mention'd in the Hiſtory, which will be prov'd hereafter to ſtand in no Need of it; and it overthrows all Attempts of accounting for this ſix Days Creation in a rational and natural Way; for if a miraculous Power be allow'd in a needleſs Caſe, we ſhall be ever at a loſs how far to extend it, and where mechanical Cauſes ought to take place. On which Conſiderations I take this extraordinary Acceleration of natural Cauſes to be, tho' not impoſſible, nor (were there any Intimation or Neceſſity of its Interpoſition from the Sacred Hiſtory) very improbable neither, yet in the preſent Caſe, groundleſs, unneceſſary, perplexing of the Cauſe, and by no means a ſufficient Solution in the preſent Affair. Which being therefore thus anſwer'd, the Argument remains in full Force, and the Length of the Days aſſign'd by the vulgar Hypotheſis appears wholly diſproportionate to the Works done therein; of which farther Notice will be taken hereafter.

(2.) When the Works of each of the other Days are *ſingle*, *diſtinct*, *and of a Sort*, the third Day has two *quite different*, *nay*, *incompatible* ones aſſigned to it. This is plain from the Hiſtory, where the Diviſion of the Waters from the Earth, or the Diſtinction of the Terraqueous Globe into Seas and dry Land, the firſt Work on this Day, is ſucceeded by that of the Production of the entire vegetable Kingdom; contrary to the perpetual Tenor of the other Periods of the Creation. How this comes about, or is accountable in the vulgar Scheme, I know not; and I believe

the

the Reaſon thereof is very little enquir'd into, and leſs underſtood. But becauſe this whole Difficulty will be urg'd againſt the Shortneſs of Days in the vulgar Hypotheſis, and clear'd in ours, at their proper Places hereafter, I ſhall wave the farther inſiſting on it here, and proceed.

(3.) But principally, The Earth with its Furniture, how inconſiderable a Body ſoever it is, takes up *four entire days*, at leaſt, of thoſe *ſix* which were allotted to the whole Creation; while the Sun, Moon and Stars, thoſe vaſtly greater and more conſiderable Bodies, are crowded into *one ſingle day* together. Now in order to our paſſing a rational Judgment in this Matter, I ſhall take leave to repreſent to the Reader's View a ſhort Compariſon or Parallel between the Earth on one Side, and the reſt of the World on the other; and ſee what Reſemblance, Correſpondence and Proportion there is between the former and the latter, either in its ſeveral Parts, or the whole taken together; and this ſhall be done on ſuch certain and undoubted Grounds and Principles as the late vaſt Advancement of natural Knowledge has afforded us; and will be more at large explain'd in the following Pages.

This Earth then, on which we live, though it be in Diameter not much leſs than 8000 Miles, and ſo a vaſt Globe, if compar'd with thoſe Bodies we daily ſee, imagine, and converſe withal; is yet one of the leſſer of the primary Planets, and with *Jupiter*, *Mars*, and the other her Fellows, revolves round the great Center of our Syſtem the *Sun*, in a Year's time. 'Tis an opake and dark Body, as they all are; and in common with them borrows all its Light and Heat from that glorious Body which we juſt now obſerv'd to obtain the Center of their Orbits; without which it, as

well as the entire Chorus of the other Planets, muſt be ſoon reduc'd all to one dark Heap of Matter, far beyond the Deſcription of the old caliginous and unprofitable *Chaos*, and in no Capacity of ever emerging out of that horrid and frightful State. In Dignity, if our Earth expect not to come the *laſt*, yet is ſhe ſo exceeded, in all things that might ſeem Characters thereof, by ſeveral of the reſt, that there can be no manner of Claim to the *firſt* place. If ſhe have a ſecondary Planet, the *Moon*, for her Attendant; (tho' in truth ſhe is at leaſt as ſerviceable to that Planet, as that Planet is to her;) *Jupiter* has certainly four; and our beſt Glaſſes have diſcover'd five about *Saturn*. The Denſity and Place of the Earth is pretty near the Middle of the Planets; and as ſhe exceeds, and is higher than ſome, ſo is ſhe exceeded by, and lower than others in thoſe reſpects. Her own ſecondary Planet, the *Moon*, has an Air much more homogeneous, pure, and tranſparent, than ſhe at preſent enjoys; and in all probability free from Winds, Clouds, Storms, Tempeſts, Thunder, Lightning, and ſuch other irregular and pernicious Effects, which frequently render our Atmoſphere ſo contagious and peſtilent to the Inhabitants of the Earth. In which Circumſtances the Generality of the other Planets imitate the Moon, and render our miſerable Condition the more remarkable and ſenſible, as appearing thereby almoſt ſingular. Our Days and Nights are longer than thoſe of ſome, and ſhorter than thoſe of others of the Planets. The Figure of the Earth is nearly ſpherical, as is that alſo of the other Heavenly Bodies; its Surface unequal, with Mountains and Valleys, as well as that of the reſt, eſpecially the Moon's, appears to be. Only 'tis obſervable, that the laſt, tho' much leſs in Bigneſs, has

her

her Mountains higher than thoſe on the Earth. The Sea and Land, Mountains and Valleys, and other ſuch correſponding *Phænomena* of the Moon, ſhew, that that ſmall Planet is not nearer our Earth in Place, than in Quality and Diſpoſition alſo. If we compute the true Magnitude or Quantity of Matter in the Earth, it will appear upon a moderate Eſtimate, that ſhe is not the 200th Part ſo big as *Jupiter*, nor the 90th ſo big as *Saturn*, nor the 220,000th ſo big as the Sun. So that ſhe is very inconſiderable, if compar'd with the reſt of *Solar Syſtem* only; but if with the entire Univerſe, or Syſtems of the fix'd Stars, in the Elegancy of the Prophetick Expreſſions, *as a drop of a Bucket, as the ſmall duſt of the Balance, yea leſs than nothing, and vanity.* Inſomuch, that to all thoſe remote Syſtems of the Heavenly Bodies, this Earth, with all its Fellow-Planets, are no more viſible than thoſe which, 'tis probable, revolve about any of them, are to us in theſe our Planetary Regions. And as we uſually little think of thoſe inviſible Globes, ſo any of their Inhabitants, if ſuch there be, never perhaps once imagine that there is ſuch a Planet as ours, (about which we make ſuch a mighty ſtir) in the World. As to the main Uſe of this Earth, 'tis to afford Habitation to a ſinful and lapſed Race of Creatures, of ſmall Abilities or Capacities at preſent, but of great Vices and Wickedneſs; and is eſteemed, as far as appears, in its preſent Conſtitution ſo peculiarly and ſolely fit for them, that when they are gone, or their Diſpoſitions and Faculties reform'd and improv'd, a better Scene of Nature, (*a new Heaven*, and *a new Earth*) is to be introduc'd, for ſuch better and more noble Creatures. The old one, which now obtains, being in its preſent State, it ſeems, only a Sort of Priſon or Confinement, which is to be

Iſa. xl. 15, 17.

our

our Lot whilſt we are ſinful and miſerable, but no longer.

And is this the only Darling of Nature, the prime Object of the Creation and Providence of God? Can ſuch a Globe's Original, nay, of the external and viſible Parts of it only, claim four Parts of ſix of that entire Space, which the Wiſdom of God allotted for the Formation of all things in the whole World? while the Origin of the Sun, Moon, and numberleſs Syſtems of Stars has only a poor ſingle Part allotted to it? Muſt the expanding the Air between the Earth and the Clouds, be thought to equal the Diſpoſal of all thoſe Celeſtial Bodies into their ſeveral Regions? and the producing a few Fiſh and Fowl be a weightier Concern, and require more time than the repleniſhing all the other habitable Worlds with Beings ſuitable to their ſeveral Conſtitutions? Will a wiſe Builder beſtow twice as much time in decking and adorning one By-cloſet of inferior Uſe, and that only to ſome of the meaneſt Servants too; as of the Royal Palace, with all its ſtately Rooms and Apartments, intended for the King himſelf, and his Courtiers? Should we hear of ſuch ſtrange Actions, and diſproportionate Procedure among Men, we ſhould not be able to induce our ſelves to give credit thereto. But it ſeems Suppoſitions ten thouſand times more diſproportionate and unaccountable, when aſcrib'd to God Almighty, are eaſily believ'd. So far can Ignorance, Prejudice, and a Miſunderſtanding of the Sacred Volumes carry the *Faith*, nay, the *Zeal* of Men! and to ſuch a mean Opinion of the moſt glorious and perfect of Beings are we thereby reduc'd, that, as if we were not content to think him ſuch a one as our ſelves, but intended to depreſs him below the very meaneſt of us, we venture with Confidence and Eagerneſs to aſcribe to him that diſproportionate,

nate, unequal, and unaccountable Diſpoſal of the Works of Creation, which the ſimpleſt Artificer could not bear the Imputation of!

It may here indeed be alleg'd, that the Earth muſt be of all the reſt the moſt conſiderable, becauſe to its Inhabitants *alone* belong'd that ſtupendous and unparallel'd Method of Divine Providence, I mean the Incarnation of the Only-begotten Son of God. Now in Anſwer to this, I ſay, (1.) 'Tis not *ſo certain* that the Son of God was *alone* concern'd with the Inhabitants of this Earth in the mighty deſign of his Incarnation and Mediation. St. *Paul* ſays, *That in the diſpenſation of the fulneſs of times, he might gather together in one all things in Chriſt, both which are in Heaven, and which are on Earth, even in him.* And again, *It pleaſed the Father that in him ſhould all fulneſs dwell: And (having made peace thro' the blood of his croſs) by him to reconcile all things unto himſelf; by him, I ſay, whether they be things on Earth or things in Heaven.* I ſay, (2.) That tho' the Advantages of our Saviour's Incarnation and Mediation, ſhould be wholly confin'd to the Inhabitants of this Earth, that does not ſhew that the other Parts of God's Creation are not equally regarded by him: but only that the *peculiar Circumſtances* of that fallen Race of Creatures which belong'd to this Earth, and of that alone, did require ſo wonderful a Method of Recovery as that by the Only-begotten Son of God in our Fleſh. If a King ſhould ſend his Eldeſt Son into a particular Province to quiet a Rebellion, and uſe peculiar Means to reduce that Province to its ancient Obedience, and into no other Part of his Kingdom; this would only prove that the Circumſtances of that Province, and of that only, requir'd ſo extraordinary a Treatment; and not that the King had a leſs Care and Concern for thoſe other

Eph. i. 10.

Coloſ. i. 19, 20.

Provin-

Provinces which were all along obedient to him. Tho' the Prodigal Son had an extraordinary and peculiar Reception and Entertainment, yet ſure the ever Dutiful Son had not the ſmaller Intereſt in his Father's conſtant Approbation and Love. The Application of both the Parallels is too eaſy to be more largely inſiſted on.

It muſt here be confeſs'd, That ſuch Notions of the *Moſaick* Creation, as I now oppoſe, having begun, or at leaſt been chiefly eſtabliſhed and propagated when the *Ariſtotelean* Philoſophy, and *Ptolemaick* Aſtronomy were believ'd; thoſe who have embrac'd them till this Age were leſs abſurd, and nearer to ſome tolerable degree of probability. For ſo long as the Earth, with its adjoining Elements, was ſuppos'd the Center and Baſis of all the World; while the Diſtance of the Heavenly Bodies was believ'd to be, comparatively to what we now find, very ſmall and inconſiderable; and all their Motions perform'd about us their proper and immovable Center; while the whole Series of Spheres above (tho' the ſeveral diſtinct ones mov'd the contrary way by their own peculiar Motions) was ſuppos'd in twenty four hours to be conſtantly hurry'd from *Eaſt* to *Weſt* by the *Primum Mobile*, on purpoſe to cauſe Day and Night to us below; while Comets were eſteem'd Exhalations from the Stars or our Atmoſphere, and ſent only at certain Seaſons to affright Mankind with their fiery Tails, and then to be diſſipated and vaniſh into Vapours again; while the Sun and Stars, in the Opinion of the Philoſophers themſelves, were nouriſh'd by Steams from our Earth; and while the laſt nam'd were either ſuppos'd to be ſtuck in one Spherical Superficies as the fix'd Stars, or faſten'd in their ſolid Orbs, like a Nail in a Cart-wheel, as the Planets, and no other Uſe imagin'd but to twinkle to us in Winter Evenings, and by their

their Aſpects to forebode what little Changes of Weather, or other Accidents were to be expected below; while no other habitable World was dream'd of than this Globe of Earth; no other Animals once conjectur'd at, beſides thoſe on the Face thereof; while Mankind was look'd on as the ſole Lord of the Creation, and Him for whoſe Sake all other Creatures in the World were made; and while 'twas commonly granted that, As all Things, the viſible Heavens and Earth, with their entire Furniture began with him; So at the Concluſion of his Succeſſion, or the period of Human Generations here, muſt they for ever ceaſe and be annihilated; While all this, I ſay, was the current Philoſophy, 'tis not very ſurprizing that the *Moſaick* Hiſtory we are now upon was underſtood in the Vulgar Senſe, and ſeem'd not wholly diſagreeable to the preſumed Frame of Nature; and 'twas not hard to believe, that this Earth and its Inhabitants, in the general Opinion, the main and principal Concern of all, and that to whoſe Uſes every Thing elſe entirely ſerv'd, had the principal Care beſtow'd upon it, both in its original Creation, and its ſubſequent Changes and Revolutions.

But tho' ſuch a Scheme, and ſuch an Apprehenſion were paſſable enough in the Days of our Forefathers, 'tis by no means ſo now. Thoſe greater degrees of Knowledge which the Providence of God has in this Age afforded us, make ſuch Opinions intolerable in the preſent, which were not ſo in the paſt Centuries. 'Tis now evident, That every one of the Planets, as well as that on which we live, muſt have a Right in its Proportion to ſhare in the Care of Heaven, and had therefore in all Probability a ſuitable Space or Number of Days allow'd to its proper Formation;

tion; much what the ſame Separations of Parts, Digeſtions, and Collections, being no doubt to be ſuppos'd in the original Formation of any other, as in that particular Planet, with which *Moſes* was concern'd. And if one or two on account of their Smallneſs, might be finiſh'd in leſs; the reſt on account of their Bigneſs, from a Parity of Reaſon, would take up much more than that ſix Days Time which was ſpent in our Earth's Formation.

And let the *Reader* judge, if it be ſo impoſſible to reduce the Planets alone within the fourth Day's Work, how much more ſo will it be (in caſe we allow Degrees of Impoſſibilities) to reduce thither that vaſt, noble, and uſeful Body, the Fountain of our Light and Heat, the Sun; and ſtill in a prodigious degree more ſo, to include the immenſe and numberleſs Syſtems of the fix'd Stars; among whom when the Sun is but one, and perhaps no bigger than the reſt; (and conſequently to have in Reaſon but an equal Portion of Time with them allotted for its Origination;) It muſt, tho' probably above 220,000 times as big as the Earth, while the Earth takes up four *entire* ones, be thruſt into the *Corner* of a ſingle Day; *Corner*, did I ſay? rather *Minute*, nay, *Moment of a Day*; and 'tis uncertain whether even that Pittance of Time can fairly and ſeparately be allow'd to it. So that one need not fear to aſſert, That he who ſhould affirm the Divine Power to have ſpent four entire Days in the Formation of a Fly or Worm, nay, of a ſingle Plant or Herb; and but one in the Formation of the Terraqueous Globe with all its Parts, Regions, and Furniture, would be leſs unreaſonable than ſome Expoſitors now are, and more obſerve Decorum, Fitneſs, Agreement and Proportion, than they do in the

Vulgar Interpretations of the *Moſaick* Creation. And I need not be afraid to call all that Aſtronomy and Philoſophy are Maſters of, to atteſt the Fairneſs of ſuch a Compariſon. And can any one who is ſenſible of this, and entertains no other than great and worthy Thoughts of his All-wiſe Creator, embrace ſo fond and ſo ſtrange an Opinion?

And if the Reader will pardon a ſhort Digreſſion, and give me leave to ſpeak a great Truth on this Occaſion, I cannot but obſerve, That 'tis not the genuine Contents of the Holy Books themſelves, but ſuch unwary Interpretations of them as theſe, which have mainly contributed to their Contempt, and been but too inſtrumental to make 'em appear Abſurd and Irrational to the Free Reaſon of Mankind. For when Men found that the Scriptures, according to the Univerſal Senſe of Expoſitors, aſcribed ſuch Things to God, as their plaineſt Reaſon could not think compatible to a wiſe Man, much leſs to the All-wiſe God; they were under a ſhrewd Temptation of thinking very meanly of the Bible it ſelf, and by degrees of rejecting it, and therewith all Divine Revelation to the Sons of Men. How fatally this Malady hath ſpread, of late eſpecially, I need not ſay; and tho' I fully believe the main Stroke or Step, as to the Generality, be Vicious Diſpoſitions, and a Debauched Temper; yet how far ſuch Ill-contriv'd, Unskilful, Unphiloſophical Interpretations, or rather Miſrepreſentations of Scripture, particularly thoſe relating to the Material World of which we are now ſpeaking, may have contributed to ſo fatal and pernicious an Effect, deſerves the moſt ſerious and ſober Conſideration.

This Miſchief is not to be remedied, nor the Veneration due to the Sacred Volumes retriev'd by an obſtinate Maintaining ſuch ſtrange Opini-

ons

ons as thoſe here referr'd to, by patronizing the ſame with Divine Authority, and then making vehement Invectives againſt ſuch (as many unskilful, yet good Men are ready to do,) whoſe only Fault is this, that they can no more be induc'd to believe what is plainly unworthy of, and unſuitable to the Divine Perfections, than what is evidently contradictory to Divine Revelation. Wiſe Men would rather ſet themſelves carefully to compare Nature with Scripture, and make a free Enquiry into the certain *Phænomena* of the one, and the genuine Senſe of the other; which if Expoſitors would do, 'twere not hard to demonſtrate in ſeveral ſuch Caſes, that the latter is ſo far from oppoſing the Truths deducible from the former, or the common Notions of Mankind, that 'tis in the greateſt Harmony therewith; and in thoſe Caſes (where the Thing mention'd is within the Sphere of Human Knowledge) no leſs accountable to the Reaſon, than enforc'd on the Belief of Mankind. And I perſuade my ſelf, if there were a careful Collection made of the ancient Knots and Difficulties in the ſeveral Parts of the Bible, with relation to ſuch Points as we are upon, or any others of a different Nature; and how very many of them, as Preludes and Pledges of the reſt, are now entirely clear'd, or might eaſily be ſo; it would more contribute to the Recovery of the ancient Honour, and due Eſteem of the Sacred Scriptures, than all the moſt zealous and general Harangues from ſome popular Topicks, either for them, or againſt their Contemners, the looſe *Deiſts* and pretended *Socinians* of this Age. For my own Part, I cannot but profeſs, that tho' I be very nice and tender in the Reaſonableneſs of my Faith, and deſirous to admit nothing but what agrees to the Divine Attributes, the common Notions

tions of our Souls, and the *Phænomena* of Nature; yet upon an impartial Enquiry into ſome of the moſt perplexing Difficulties occurring there, I have obtain'd ſo great a Meaſure of Satisfaction about them, that my Scruples now ceaſe, and I cannot doubt either of the Truth or Divine Authority of the Scriptures. I do not mean, that all the Difficulties are in particular vaniſh'd and perfectly clear'd to me; that is what is ſcarce to be hoped for in this World: But I have ſo frequently met with fewer Difficulties in the Conſideration of the Books themſelves, than in the common Interpretations, and thoſe very Comments which ought to aſſoil 'em; and in ſo many, and thoſe moſt remarkable Points of all, have met with ſuch clear and plenary, tho' unexpected Satisfaction, that I have great Reaſon to believe the reſt equally capable of the ſame; and to remain conſtant in this Aſſurance, that 'tis the ignorant or fooliſh Expoſitions of Men, not the natural and genuine Senſe of the Words themſelves, that makes us imagine, Scripture, Reaſon, and the Nature of Things irreconcileable or contradictory to one another. And I hope the Inſtances he will meet with in the following Theory, will go a great way to perſuade the unbiaſs'd Reader of the ſame Truth; and to convince him, that greater Satisfaction is to be look'd for from the View of God's own Books of Nature and Scripture, than thoſe of any Men whatſoever. Whatever incompetent Judges may ſay, nothing will ſo much tend to the Vindication and Honour of reveal'd Religion, as free Enquiries into, and a ſolid Acquaintance with, (not ingenious and precarious Hypotheſes, but) true and demonſtrable Principles of Philoſophy, with the Hiſtory of Nature, and with ſuch ancient Traditions as in all Probability were deriv'd from

Noah, and by him from the more ancient Fathers of the World. From which *Mediums* what ſurprizing and unhop'd for Light may be given to ſome famous Portions of the Holy Scriptures, the following Pages will, 'tis hoped, afford ſome convincing Inſtances, and prove ſufficient to take away Men's ungrounded Fears and Apprehenſions in ſuch Matters; and, by the Divine Bleſſing, appear a ſeaſonable Atteſtation to the Certainty and Authority of thoſe *lively Oracles* on which our Happineſs in this and the next World does ſo vaſtly depend. But I muſt leave this Digreſſion, and proceed,

VI. The vulgar Scheme of the *Moſaick* Creation, beſides the Diſproportion as to Time, repreſents all Things from firſt to laſt ſo diſorderly, confuſedly, and unphiloſophically, that 'tis entirely diſagreeable to the Wiſdom and Perfections of God.

And here I might juſtly appeal to the Conſcience of every careful Reader, even though his Knowledge of the true Syſtem of the World were not great, whether the vulgar Account has not ever ſeem'd ſtrange and ſurprizing to him? But if he were once philoſophically diſpos'd, and allow'd himſelf a free Conſideration of it; whether it has not ever been the moſt perplexing Thing to his Thoughts that could be imagin'd? 'Tis well known how far this Matter has been carried by wiſe and good Men; even to the taking away the literal, and the reſolving the whole into a Popular, Moral, or Parabolick Senſe. And under what Notion this Hiſtory on the ſame Account has appear'd to others, of no leſs free, but leſs religious Diſpoſitions and Thoughts, I need not ſay: What is indeed Matter of doubt

and

and Perplexity to pious Men, being unqueſtionably to the Looſe and Profane, the Subject of Mirth and Drollery, and the ſure Encouragement to Atheiſm and Impiety. But I ſhall not content my ſelf with this general Reflection; but inſtead of proſecuting ſuch a Diſcourſe any farther, ſhall aſſign ſuch particular Inſtances of the irregular and unbecoming Procedure in the vulgar Scheme of the Creation, as ſeem plainly diſagreeable to the Divine Wiſdom, and unſuitable to the Nature of Things.

(1.) Bodies alike in Nature have here an unlike Original.

(2.) Bodies unlike in Nature have a like Original.

(3.) Bodies moſt conſiderable in themſelves, have the moſt inconſiderable Accounts given of them.

(4.) No Bodies but the Earth have either Time for, or Particulars of, the Formation of the ſeveral Parts aſſign'd.

(5.) The Light appears before its Cauſe and Fountain the Sun was made.

(6.) The Excavation of the Channel of the Ocean, and the Elevation of the Mountains is unnatural and indecent. Of each of which I ſhall ſay but a word or two, and then as briefly argue from them.

(1.) Bodies alike in Nature, have an unlike Original. Our Earth is one of the Planets, and in all Reaſon belonging to their Formation; yet is ſhe the Subject of the Second, Third, Fifth, and Sixth Days Works, while the reſt are included in the Fourth Day.

(2.) Bodies unlike in Nature have a like Original. The Sun, a glorious Body of Light,

with his Fellows the fix'd Stars, are join'd in the fourth Day with the Opake and dark Globes the Planets.

(3.) Bodies moſt conſiderable in themſelves, have the moſt inconſiderable Accounts given of them. This is very obvious in that mighty ado about our poor Earth, while the vaſtly greater and nobler Bodies of the Sun and Stars are ſcarce taken any notice of. And how diſproportionate ſuch a Procedure is, the Compariſon already made of the Earth on one Side, with the reſt of the World on the other, does more than ſufficiently demonſtrate.

(4.) No Bodies but the Earth have either Time for, or Particulars of, the Formation of the ſeveral Parts aſſign'd. For when four Days are wholly taken up with the Particulars relating to our Earth; the Diviſion of its Aerial from its Earthly Waters; the diſtinguiſhing the latter from the dry Land, and draining 'em into the Channels of the Seas; the Growth of Plants; Generation of Fiſh, Fowl, and Terreſtrial Animals; and at laſt the Creation of Man, with ſeveral Circumſtances relating to him, and the other Creatures; not a Syllable as to the Particulars of the reſt of the World. Light is only commanded to ſhine on the Firſt Day; and the Heavenly Bodies made on the Fourth, and there's all, as to themſelves, which occurs here.

(5.) The Light appears before the Creation of the Sun, from whence it is deriv'd; that being the Work of the Firſt, this of the Fourth Day. Which how philoſophical and accountable 'tis, let the Reader judge.

(6.) The Evacuation of the Channel of the Ocean, and the Elevation of the Mountains, is unnatural and indecent. For when the Earth

was at firſt even, and cover'd with Waters, Expoſitors imagine, that God, as it were, digg'd a vaſt Channel for the Ocean, and heav'd away the Earth, and plac'd it on all Parts of the Globe, to make the Mountains. Which how indecent it is, I had rather leave to the Judgment of the Reader, than to ſtand here to exaggerate; eſpecially where the naked Repreſentation of the Thing it ſelf is a ſufficient expoſing thereof to free Thinkers.

Theſe obvious Remarks on the vulgar Scheme of the *Moſaick Creation*, (to omit the paſſing by of the entire inviſible World, whether within or without the Surface of the Earth, whether corporeal or ſpiritual) are, I think, ſufficient Demonſtrations, that 'tis a very diſtant one from the true Nature of Things; and ſuch as is both unworthy of the Writer and Author of the Sacred Hiſtory. Whoever will take the Pains carefully to conſider the Syſtem of Nature, and compare it with theſe Remarks, and the common Opinion of the proper Creation of all Things in the ſix Days Work, will not, I believe, be at a loſs for Arguments to over-turn the old, and to prove that a *New Theory* is to be enquir'd after, and a narrower World to be expected in the Firſt Chapter of *Geneſis*, than has generally been.

But before I conclude this Head, I muſt here obſerve, that the Conſideration of theſe Matters has had ſo great Influence on our late moſt Excellent Commentator on *Geneſis*, that tho' he keep more ſtrictly to the Letter of *Moſes* than others, yet he finds Occaſion and Room for theſe four great Conceſſions, no leſs contrary to the vulgar, than approaching to the preſent Account of the Hiſtory of the Creation. Biſhop *Patrick.*

(1.) He is willing to allow that *Moſes* meddles

not with the *entire Univerſe*, but with the *Planetary Syſtem only.*

(2.) He allows the *Creation* of the World to have been over *before* the ſix Days Work begins.

(3.) He grants the ſame ſix Days Work to be the regular and orderly Reduction of a confuſed *Chaos* into an habitable World, without any ſtrange Miracles in every Part.

(4.) He ſuppoſes, that for a conſiderable Time before the ſix Days Work began, there were ſuch preparatory Agitations, Fermentations, and Separations or Conjunctions of Parts, as diſpoſed the whole to fall into the ſucceeding Method, and introduce the ſix Days Productions following.

Which Conceſſions of ſo great a Man and excellent a Commentator, as they argue his Senſe of the Neceſſity of receding from the vulgar Hypotheſis, ſo they, I confeſs, leſſen and diminiſh the Difficulties in this Hiſtory. *Leſſen*, I ſay, and *diminiſh*; not take them away. For beſides the Want of any Foundation in Scripture, as far as I ſee, for the Diſtinction between the fix'd Stars and Planets; the Arguments I have all along urged, reach, and are fram'd with regard to this limited Hypotheſis alſo; and, with thoſe yet to come, are, I think, abundantly ſufficient to my purpoſe ſtill, and will demonſtrate the Unaccountableneſs of the Hiſtory of the Creation even on this, tho' much more on the common Interpretation.

VII. The *Moſaick* Creation does not extend beyond this Earth, becauſe the alone *final Cauſe* of all therein contained, is the Advantage of Mankind, the Inhabitant thereof.

Now that the *final Cauſe* of all the Particulars mention'd in the Hiſtory before us, is here rightly aſſign'd, is not only viſible in almoſt every

every Verſe of it, and in the Places of Scripture afterwards referring to the ſame thing; but commonly acknowledg'd, nay, contended for, by the Patrons of the vulgar Account; ſo that I ſhall here take it for granted. But then as to the Conſequence, that therefore the Creation is no farther to be extended, or at leaſt not ſo far as here it muſt otherwiſe be, to the Sun and Planets; nay, with the moſt, to the innumerable Syſtems of the fix'd Stars; 'tis to me ſo natural and neceſſary, that methinks 'tis perfectly needleſs to go about the Proof of it. That ſo vaſt and noble a Syſtem, conſiſting of ſo many, ſo remote, ſo different, and ſo glorious Bodies, ſhould be made *only* for the Uſe of Man, is ſo wild a Fancy, that it deſerves any other Treatment ſooner than a ſerious Confutation; and one may better think ſilently with one's ſelf, than with due Deference and Decency ſpeak, what naturally ariſes in one's Mind on this Occaſion.

If 'tis an Inſtance of, or conſiſtent with the Divine Wiſdom, to make thouſands of glorious Bodies for the ſole Uſe of a few fallen and rebellious Creatures, which were to live for a little while upon one of the moſt inconſiderable of them! To create an innumerable Multitude of Suns and Planets, and place them at prodigious Diſtances from us & from one another (the greateſt Part of which were never ſeen till the late Invention of the Teleſcope; and of ſuch as are viſible, the Sun excepted, the ſingle Moon, as deſpicable a Body as it is in compariſon to the moſt of the others, is much more beneficial to us, than they all put together;) for the mere Convenience of one little Earth! If 'tis wiſe and rational to make the Sun more than 220000 times as big as that Globe it was to ſerve, only

that it might be plac'd above 80 Millions of Miles off: (for in a nearer Poſition it would have ſcorch'd and burnt, inſtead of warm'd and invigorated the Earth) when a ſmall fiery Ball plac'd near us would have done as well! To make a vaſt Number of Planets, (every way as capable of Creatures of their own) only for the Sake of us on Earth; that we might in the Night-time view and calculate their Poſitions and Motions! To place five ſecondary Planets about *Saturn*, and four about *Jupiter*, that after for more than ſix thouſand years no one had dream'd of their Exiſtence, a few Aſtronomers might, with their Glaſſes, peep at them, and obſerve their Periods! To appoint the Orbit of one of the primary Planets (*Mercury*) ſo near the Sun, that not one in a hundred ever gets a diſtinct View of him all his Life! To move the Comets in Orbits ſo extremely large and elliptical or oblong, that by their Diſtance from the Planetary Regions moſt part of each Revolution, they ſhould be ſo little obſervable, that the World were juſt ending before they could be known to be other than Maſſes of Vapours ſoon conjoin'd, and as ſoon diſſipated again, and now not viſible the hundredth or perhaps thouſandth Part of their Periods! To make all this immenſe Frame of the Heavenly Syſtems, ſo Glorious, Auguſt and Magnificent, and ſo deſerving of our Contemplation; and yet withal to frame our Eyes and Senſations in that manner, as to be uncapable to diſcern or imagine any thing thereof in Compariſon! ſo that had not Aſtronomical Obſervation rectify'd our Miſtakes, we muſt have thought the whole World not near ſo big as one of its leaſt Bodies really is; and all this without any farther Proſpect, or nobler Deſign, than the ſingle

Uſe

Uſe and Advantage of Mankind! If, I ſay, all this be the Effect of Ineffable Wiſdom and Contrivance, and worthy to be believed of the All-wiſe God; 'tis ſcarce poſſible to ſuppoſe, in the Material World at leaſt, what will not be equally ſo. And ſuch ſtrange and aſtoniſhing Incongruities, which among poor Mortals would unqueſtionably argue the moſt extravagant degree of Folly; in the Deity, *Bleſſed for evermore*, muſt be Arguments of unbounded Perfection, and Effluxes of Infinite Reaſon, Wiſdom, and Prudence. Certainly one ought to be very well aſcertain'd of the Senſe of Scripture, before from thence one venture to aſſert ſuch *unreaſonable* Opinions.

Nay even tho' the Senſe of Scripture ſeem'd exceeding favourable to any Scheme of this Nature, yet in that Caſe, a conſidering Perſon would chuſe rather honeſtly to own his Ignorance, and confeſs he did not underſtand the Matter, than be *poſitive* in that which is ſo plainly repugnant to the Divine Perfections.

And this (to digreſs a little) is methinks the only ſafe and rational Way of Procedure in thoſe Caſes, where we cannot reconcile the Divine Attributes, the *Phænomena* of the World, or the Reaſon of our own Minds, to the Revealed Word of God, *viz.* In the firſt place carefully to conſider the Texts concern'd, and whether they are not miſapply'd; if on ſuch a Conſideration we cannot find them to be ſo, and that, except a forc'd, unnatural and violent Senſe be put upon plain Words, the Difficulties ſtill appear inſuperable; 'tis then our Duty and our Wiſdom to imitate the *Jews* in that admirable and pious Proverb in theſe Caſes, *Cum Elias venerit ſolvet Nodos:* To ſit down and reſt ſatisfied with this Expectation, That when the Divine Wiſdom ſees it a fit time, all will be aſſoil'd; and every one

of

of the Knots of Scripture and of Providence untyed. To ſtay with Patience for thoſe ἴδιοι καιροὶ, peculiar Seaſons, which with regard both to the Improvement of Knowledge, and unvailing of Myſteries, no leſs than the fulfilling Decrees, *the Father has put in his own power.* And as the old *Jews* ſhould in vain have attempted the entire underſtanding of their own Ceremonial Law till the ἴδιος καιρὸς, the Coming of Chriſt; ſo I believe we muſt not expect the clearing of every Text of Scripture, and of every Secret of Providence, till the ἴδιος καιρὸς, *the time appointed of the Father.* Till then we ought not, where inſuperable Difficulties occur, by a bold Determination to run counter to God, either in his Word, whether engraven on our Minds, or written in the Bible, or his Works viſible in the World.

Acts i. 7.

'Tis hard to ſay, whether thoſe diſhonour God moſt who embrace Doctrines, ſuppos'd deducible from Scripture, tho' plainly abſurd and unreaſonable in themſelves; or thoſe who venture to deny or at leaſt wreſt and prevaricate with the obvious Meaning of ſuch Texts whence thoſe Doctrines us'd to be inferr'd. Both theſe Methods of Procedure are bold and dangerous; Effects of our own Pride, and too high an Opinion of our proper Apprehenſions and Abilities; and of ſad Conſequence to our ſelves, to others, and to Divine Revelation. There is a third or middle Way, which, tho' an Inſtance of real Self-denial, we both may and ought to take. *Let God be true, and every man a liar.* Our Underſtandings are finite, our Capacities ſmall, our Sphere of Knowledge not great. We depend on God Almighty as to what we *know*, as well as what we *have*, or what we *are*. 'Tis poſſible it may not yet be the proper Seaſon for unravelling the Myſtery, and ſo the requiſite Helps not yet

Rom. iii. 4.

yet afforded: Our own Unskilfulneſs or Prejudices; ſome falſe Notions or precarious *Hypotheſes* we have embrac'd; our miſunderſtanding the Nature of the Scripture Stile; a Miſtake of a Copy; the Ignorance of the various Stages and Periods of the World to which the Particulars belong; with many other ſuch Circumſtances, may juſtly be ſuppoſed the Occaſions of our Difficulties, without calling in queſtion either the Truth of our human Faculties, the Attributes of God, the *Phænomena* of Nature, or the genuine Senſe of the Holy Scriptures. And truly were I asked in ſuch a Caſe, how I could ſatisfy my ſelf, or reſolve the Point; I could not more properly anſwer than by alluding to the *Jewiſh* Proverb before-mention'd; and alledging that, *Cum Meſſias venerit ſolvet Nodum*; till which time I might deſire Leave to defer my farther Anſwer.

And here, from a general View of what has been ſaid on theſe three laſt Arguments, we cannot but obſerve into what erroneous Extremes good Men have been betray'd, with relation to ſeveral main Difficulties occurring in the Sacred Writings: While from a profound Reſpect to the revealed Word of God, the moſt were willing to lay aſide the Uſe of their own Reaſon; and others from a no leſs Veneration for the Divine Attributes, and Regard to thoſe common Notions which God had implanted in their Souls, were willing to indulge too great a Liberty in the Interpretation of Scripture. The former, being generally pious and devout Souls, but little vers'd in Contemplation, or the Improvements of natural Knowledge, were diſpos'd to receive all that a Vulgar and Religious, tho' leſs Wary and Prudent Expoſition, ſhould recommend to their Aſſent. The latter having added to their Piety and Virtue, a careful Enquiry into

into Nature, and a freer Exercise of their human Faculties, and observing how heavy Imputations some common Interpretations laid on the Divine Majesty, how disagreeable they were to external Nature, as well as the Reason of Mankind, were carried too far on the other hand; and whilst the latter were secur'd, were not proportionably sollicitous about the former: I mean, so that nothing but what Reason, the Attributes of God, and the System of the World allow'd, were admitted, these did not take a proportionable Care that the natural Sense of Scripturewere equally provided for.

What I would here farther observe, is, the equal Condition and Deserts, but the unequal Reputation and Fate these two sorts of Men have generally met with in the Christian World. Their Characters to me seem so correspondent, and their contrary Mistakes so equally wide from Truth, equally derogatory to the Honour of God, and yet equally proceeding from a Religious Principle, a Desire to secure the Interest of Divine Revelation; that to me they seem to deserve the same Respect and Commendation for their sincere Endeavours, and pious Intentions; the same Pity and Pardon for their Errors and Mistakes. But it has happen'd much otherwise: For by reason of the little Leisure and Abilities of the Generality of Teachers to cultivate their own Reason, or make any successful Enquiries into the Natural World; the former Sort being in themselves most numerous, and, as must needs happen, having the most part of Christian People on their Side, did with Zeal and Earnestness condemn the latter; and tho' themselves on one side did as highly dishonour the Sacred Oracles, as the other on the opposite, yet they vehemently laid *that* Imputation on the latter, and decry'd them as secret Underminers of that

Word

Word of God they pretended more rationally to explain. 'Twere eaſy to give Examples in this Caſe; but I ſhall content my ſelf with one concerning thoſe very Hiſtories of the Creation and Deluge, which I am to explain in the following Theory.

'Tis well known what great, and hitherto inſuperable Difficulties theſe Hiſtories have involved in them, to the general View of Mankind; and how much ſtill greater, and ſtill more inſuperable thoſe Difficulties appear'd to Philoſophick Enquirers, who came more nicely to conſider them, and compare what was aſſerted in the Holy Scriptures, with the true Frame and Syſtem of External Nature. The Conſideration of theſe Things ſo affected a great and good Man, that he reſolv'd on a noble Attempt, and undertook to clear thoſe Points; and ſhew that the *Temporary Origin of the World from a Chaos*, and *an Univerſal Deluge*, were rational and accountable Theorems, and thereby take away that Blot and Obſtacle, which the ſeeming Impoſſibility of theſe Things laid in the way of ill-diſpoſed Perſons. In which Matters, he employ'd his utmoſt Skill in the beſt Syſtem of Philoſophy then known in the World; his moſt diligent Reſearches into the ſacred and prophane Accounts relating to thoſe anciently more known *Phænomena* of Nature, together with ſuch other Helps as his own excellent Abilities could afford him; and that as to ſeveral main and principal Strokes, to very great Satisfaction, and to the very remarkable Illuſtration of the Holy Scriptures. But in the Proſecution of this Scheme, being ſo vaſt, ſo noble, ſo uniform, ſo coherent, and withal ſo new and ſurprizing, it at laſt appear'd that ſuch his Theory would not in ſeveral Particulars accord with the Letter of Scripture. This unhappy

Dr. *T. Burnet.*

happy Diſſonancy the Theoriſt was ſoon ſenſible of, and no doubt not a little concern'd about. In which Streight, ſeeing no poſſible way of ſecuring the main Points without ſo unpleaſing a Conceſſion; inſtead of reſolving to reſt ſatisfied in the natural Senſe of Scripture, and acquieſcing in the Divine Revelation, till farther Means of clearing the whole ſhould offer themſelves, which I think is a good Man's Duty in ſuch Caſes, he ventur'd to ſuppoſe that the Sacred Books were not always to be ſo literally and naturally underſtood, as was generally believ'd hitherto. He alledg'd, That conſidering the mean Capacities of the *Jews*, which were not capable of ſuch Points of Philoſophick Truths; conſidering the moſt ancient way of conveying (or rather of concealing) ſublime Theorems, by Parables, Fables, and Hieroglyphicks; conſidering the Scripture Stile in ſome other Caſes, very much different from the preſent plain and explicit way of Diſcourſe, and nearer akin to that moſt ancient Method; conſidering the main End of the Holy Writings, the Benefit of the Moral World, ſeem'd not to require a ſtrict Adherence to Truth in every Circumſtance relating to the Natural; nay, rather enforc'd a receding from it in ſome Caſes; conſidering, laſtly, That all Ages had in vain endeavour'd to clear theſe Points according to the Strictneſs of the moſt obvious Senſe, and that the greater Improvements in Philoſophy ſeem'd but to render them ſtill more unaccountable; conſidering, I ſay, all theſe Things, He ſuppoſed that the Holy Writers only ſecur'd the Fundamental and General Verities; involving the reſt under, and explaining the whole by a way of ſpeaking, which was Myſtical and Mythological; rather popular than true; and fitted more to the Needs of Men, than to the Reality of Things.

This is, I think, a fair and full Account of the Opinion, and a genuine Explication of the Occaſion of this unhappy Slip of our late Excellent *Theoriſt*; and ſuch an one I acknowledge 'tis, as in it ſelf, has no ſolid or neceſſary Foundation; is of ill Conſequence to the Authority of the Holy Scriptures, and diſhonourable both to their Penmen, and chiefly to their principal Inditer, the Bleſſed Spirit of God.

In which Cenſure, if the Learned Author think me too free, or too ſevere, he will, I hope, ſee Reaſon to excuſe, and not be diſpleas'd with me, when I have own'd, as I muſt ingenuouſly do, That *in accuſing him, I condemn my ſelf; for I my ſelf*, in great meaſure, *have thought the ſame Things.* For I cannot but with the *Theoriſt* confeſs, That the Difficulties in the Vulgar Expoſitions were ſo great; ſuch abſurd Incongruities aſcrib'd to God by them; the true Syſtem of the World did ſo diſagree, and increaſe the Scruples; the main Hiſtories themſelves appear'd ſo impoſſible to be any other way ſecur'd; Several of the Accounts given by the *Theoriſt* were in the main ſo ingenious, ſo probable, and ſo agreeable to Ancient Tradition, upon a curſory Conſideration; and the Arguments before-mention'd ſeem'd to me ſo conſiderable, that 'twas not eaſy for me to deny all Aſſent to that very Concluſion, which yet on farther Enquiries and Diſcoveries, I think not unworthy of the foregoing Cenſure. And I ſhould eſteem it a very ſignal Happineſs, if, as *that* Theory was ſo inſtrumental in drawing me into the fore-mention'd Miſtake; ſo *this* might be fortunate enough to perſuade the Author of that, of the oppoſite Verity; in which the Diſcoveries it contains have fully ſettled my own Mind; and are, I think, ſufficient

cient in themſelves to ſettle the Minds of others.

But to wave theſe too ambitious Expectations, I cannot but ſay ſo much in Behalf of that Learned *Theoriſt*, That as he juſtly deſerves the higheſt Commendations for ſo generous and worthy an Attempt; for the great Illuſtration he has given thoſe Hiſtories from the moſt ancient Traditionary Learning; and the Light afforded to the Holy Scriptures in ſeveral, and thoſe very conſiderable Points; ſo he has, I think, Reaſon to expect an eaſy Pardon where he was not able to do the ſame; eſpecially, when not only Pardon, but the freeſt Praiſes are beſtow'd on thoſe, who, as I before obſerv'd, equally have expos'd the Honour of God, and equally derogated from the Reputation of the Sacred Writings by their unwary and unskilful Interpretations. A good Man, who to the higheſt Veneration for the Perfections of the Divine Nature, has join'd a careful Enquiry into the Frame of the World, and a free, but modeſt Uſe of thoſe Faculties God has given him; and has withal exactly conſider'd the undoubted Evidence for the Divine Authority of the Scripture; ought to be, and will be as tender of believing a Senſe which is contrary to his innate Notions, to the Perfections of God, and the certain Obſervations of Nature, as of that which puts a force upon the Words themſelves, and renders them meerly Popular and Mythological. And by conſequence either thoſe who ſo frequently and zealouſly do the former, are to be condemn'd, which yet the Chriſtian World has been far from doing; or thoſe who have been forc'd upon the latter, ought to eſcape any greater Severity. For my own Part, as in ſuch difficult Caſes, I eaſily paſs over the Miſtakes, and value the Truths diſcover'd by any well-diſpos'd Perſons; which is but

a due

a due Debt owing from one fallible Creature to another: So I humbly bleſs God, the Author and Giver of all good Things, for that Light he has afforded me (and which, by the Divine Bleſſing, I hope the following Pages will afford the *Reader*) in theſe Matters; by which I am convinc'd of the no-neceſſity of oppoſing the *Literal* to the *True*; the *Obvious and Natural*, to the *Rational and Philoſophick* Interpretations of the Holy Scriptures; and ſhall chearfully wait for that happy time, when all Doubts being remov'd, and all Objections prevented by the Improvement of our Knowledge, and the Conduct of the Divine Providence, Reaſon and Revelation ſhall reciprocally bear witneſs to, and embrace each other; when no one ſhall be able to pretend to the one, but he who is equally acquainted and ſatisfied with the other: and the whole reaſonable Creation ſhall unite their Hearts and Tongues in Hymns to God, ſaying, *All thy Commandments are faithful. Thy Statutes are right rejoicing the Heart. Thy Judgments, O Lord, are true and righteous altogether. Righteous art thou, O Lord, and juſt are thy Judgments. Great and marvellous are thy Works, O Lord God Almighty! Juſt and true are thy Ways, O King of Saints!* But to return from this Digreſſion, and to proceed.

Pſal.cxix. 86.
Pſal. xix. 8, 9.
Pſal.cxix. 137.
Apoc. xv. 3.

VIII. I prove that the *Moſaick* Creation extends no farther than our Earth, and is of no other Nature than is aſſign'd here; becauſe neither the Intentions of the Author require, nor the Capacities of the People could bear either a ſtrictly Philoſophical, or a truly Univerſal Account of the Origin of Things.

The Deſigns of *Moſes*, the inſpired Penman, or rather of that Bleſſed Spirit which inſpir'd him, in this Hiſtory of the Creation, were, Not the gratifying the Curioſity, or ſatisfying the

Philoſophical Enquiries of a few elevated Minds, but of a more general and uſeful Nature; namely, To inform the *Jews*, and the reſt of the World, that all the viſible Frame of Heaven and Earth was neither exiſtent from all Eternity, nor the Reſult of blind Chance, fatal Neceſſity, nor unaccountable Accidents, but the Workmanſhip of God Almighty. To make them ſenſible that every Being they had any Knowledge of, was deriv'd from, and ſubject to that *Jehovah* whom they worſhipp'd; and that in him *themſelves*, with all their Fellow-Creatures in the open Air, on the wide Earth, and in the deep Seas, *liv'd, mov'd, and had their Being*; who therefore muſt needs be the Governor and Ruler of them all. To affect their Minds, by this Means, with the awfulleſt Veneration for the God of *Iſrael*, and inſpire them with a juſt Gratitude to him for all their Enjoyments; who had not only created this Earth for Mankind, and furniſh'd it with various Creatures for their Uſe; but beſide theſe Terreſtrial, had made the very Celeſtial Bodies ſubſervient to their Neceſſities. To demonſtrate the Original Goodneſs and Perfection of things, and that therefore whatever was Evil muſt have been the conſequent of Man's Fall, and not of God's Primary Introduction; and thereby to teach Men Humility, and raiſe their Abhorrence of Sin, the Cauſe of all their Miſeries. To ſhew them the Unreaſonableneſs of all Sorts of Idolatry, or of the Worſhip of any viſible Beings, tho' never ſo uſeful or glorious, by aſſuring them they were all in common the Creatures of God, and all their Influences, of what kind ſoever, entirely deriv'd from him, and under his Diſpoſal. In ſhort, the main Deſign was to ſecure Obedience to thoſe Laws he was about to deliver from God to them, by giving them

Acts xvii. 28.

them the greateſt and juſteſt *Idea*'s of their Legiſlator, the *Almighty Maker of Heaven and Earth.*

Theſe were, I ſuppoſe, the principal Reaſons of thus recording the Creation of the World, and theſe Reaſons made a particular Account of the viſible Parts of this Earth, with all its Furniture, that was obſervable and expos'd to their daily View, neceſſary and expedient; nay, they enforc'd ſome kind of mention of the Heavenly Bodies, ſo far as they were concern'd with us below, and ſo far as to ſhew, that God originally created them, as well as the more ordinary Bodies on the Face of the Earth. All this was but proper and neceſſary in order to the foremention'd Purpoſes. But why a Natural and Philoſophical Account ſhould be given of the primary Formation of ſuch remote and different Syſtems of Bodies, whoſe real Bigneſs, Diſtances, Natures, and Uſes, abſtractedly conſider'd, never came into Men's Thoughts, nor were once imagin'd by them, I cannot ſo eaſily tell.

Eſpecially, if it be conſider'd, That the Capacities of the *Jews*, to whom *Moſes* peculiarly wrote, were very low and mean, and their Improvements very ſmall, or rather none at all in Philoſophick Matters. 'Tis not to be imagin'd that an entire Account of the Origin of the whole Frame of Nature, (the nobleſt and moſt ſublime Theory the higheſt Philoſopher could exerciſe his Thoughts upon,) ſhould be within the Reach of the *Jewiſh* Apprehenſions. We do not find in our Learned and Inquiſitive Age, ſuch a ready Comprehenſion and Reception of Truths in Philoſophy among the Generality of Men; and 'tis ſo lately, that an eaſy Propoſition of the Earth's Motions diurnal and annual, rais'd a mighty Duſt, and was very difficultly embrac'd by even thoſe

who called themſelves Philoſophers, that from ſuch an Inſtance we may eaſily imagine how any natural Notions relating to the Conſtitution and Original of all the Bodies in the Univerſe muſt have been entertain'd among the rude and illiterate *Jews*, newly come from the *Egyptian* Bondage, and deſtitute of the very firſt Elements of Natural Knowledge. Every one in the Hiſtory of the Bible may with Eaſe obſerve, That the Abilities and Studies of the *Iſraelites* (as indeed 'tis true of moſt of them to this Day) were of another Nature and Size, than muſt here be ſuppos'd, if we bring in all the World into the *Moſaick* Creation. If an indifferent Stander-by, who had never read the firſt of *Geneſis*, were to judge what a Sort of a Κοσμοποιία were to be given to ſo ignorant and unskilful a Nation; he could not, with common Prudence, ſuppoſe either that it ought to be perfectly Philoſophical, or include any more than the Senſes and Capacities of the *Jews* could arrive at, the Earth with its Appurtenances, and the Heavens, ſo far as they were plainly therewith concern'd. Indeed, not only the *Jews*, but the Generality of Mankind's Apprehenſions always were, and ſtill are much too narrow for any noble Diſcoveries relating to univerſal Nature; and a Chapter about *Algebra* might almoſt as ſuitably to Reaſon be recommended to them, as an Account of the true Origination of all the World. Nay, *de facto*, it appears, That *Moſes* was ſo far from deeming his People capable of Underſtanding the entire Syſtem of Bodies remote and diſtant; that 'tis clear, he eſteem'd it improper to ſay a word about the internal Conſtitution and Parts of our own Earth; contenting himſelf with what the Surface afforded, and what unavoidably came under the Notice of their Senſes, as is too plain to be deny'd in the Hiſtory before us. And

And ſhall we after all this believe or imagine that 'twas fit and proper, nay, or barely poſſible, for *Moſes* to give a full Account of the Beginning of the World? And impreſs a juſt, true and adequate *Idea* thereof on the Minds of the People! I believe 'twas ſo far from it, that ſtill after all the Accommodation to the Senſes and Capacities of Men, which he and the other Holy Writers uſe on ſuch Occaſions; yet the mere Obſervation of the Truth of Things forc'd them ſometimes to ſpeak what the others were not able rightly to comprehend; and they ſeem rather, in natural Truths, to have gone too high, than deſcended too low; conſidering the groſs Ignorance of their *Readers*, in thoſe Matters.

Thoſe Expreſſions of Scripture concerning the Roundneſs of the World; the Earth's being founded on the Seas, and eſtabliſhed on the Floods; a Compaſs or Orb being ſet on the Face of the Deep; the ſtretching out of the Earth above the Waters, and its conſiſting out of the Water and in the Water; of moſt of which we ſhall take notice hereafter: Thoſe Expreſſions, I ſay, are exactly accommodate to the real Conſtitution of the Earth, as will appear in due place; but were, 'tis plain, very much miſtaken afterward. Men generally took the Earth to be round, not as a Sphere, but a Circle; and ſuppos'd the Abyſs, on which 'twas founded, to be the Ocean or great Sea, on whoſe Surface, in their Opinion, it ſwam; and which on every Side encompaſs'd it as far as the very Firmament gave leave, and the Ends of the Heaven would permit. That Continent we inhabit, was taken for the whole World; and its Middle or Center, imagin'd by moſt Men to be near the Place where they themſelves dwelt. The

Vid. *Phænom.* 13. *infrà.*

Horizon or Sea, and the Firmament, were believ'd to bound and terminate each other. The Sun, Moon, and Stars, were ſuppos'd at their deſcending below the Horizon, to be immers'd in the Sea; and at their aſcending above it, to emerge out of it again. How ridiculous theſe Conceits are, every one will eaſily judge, who has but a ſmall Inſight into the Syſtem of the World; and how little they are countenanc'd by the Texts before refer'd to, 'twere eaſy to ſhew; but 'tis plain, They were ſo apply'd, and the Particulars pretty handſomely adjuſted to Mens own Fancies on theſe *Hypotheſes*.

When therefore we obſerve the Expreſſions of Scripture about the Conſtitution of our own Earth to have been ſo miſerably miſunderſtood and miſapply'd, we may eaſily collect what Fate any Notions of a ſublimer Nature, concerning the Heavens, and the whole Syſtem of Beings, muſt have undergone amongſt them. If the Apoſtles, in a more Learned Age had begun their Preaching with the requiring Mens Belief to the Motion of the Earth, the Being of *Antipodes*, or any other ſuch *Paradox* in Philoſophy, nay, or given them a true and rational Scheme of the Origin of the Univerſe in all its Parts, we may ſoon gueſs at the Reception they would have met with, and at the Succeſs of their Miniſtry. This Procedure could contribute nothing to their Deſign, neither could the People be made to underſtand and believe ſuch ſtrange Notions. And as in this Caſe, every one will allow the Abſurdity of ſuch a Method, and never imagine it probable that the Apoſtles could make uſe of it; ſo ought we, by only changing the Scene, to conclude, *à priori*, that 'tis highly unlikely that *Moſes* would take ſuch a Courſe; and that, unleſs the Words of the Hiſtory were too expreſs

expreſs and plain to be deny'd, 'tis extremely improbable ſo great a Lawgiver (to go no farther) would extend his *Coſmogony* beyond the *Ends* of his writing it, and the *Abilities* of thoſe who ſhould read it; or in other words, 'tis extremely improbable that the *Moſaic* Creation ſhould be of any other Nature or Extent than the Propoſition we are upon does aſſert.

IX. Laſtly, I prove the *Moſaick* Creation extends no farther than this Earth and its Appendages, becauſe the Deluge and Conflagration, whoſe Boundaries are the ſame with that of the *Moſaick* Creation, extend no farther.

I ſhall here take it for granted, That the Limits here aſſign'd to the Deluge and Conflagration, are juſt; it being certain as to the former, and I think more than probable as to the latter; and only quote a place or two to prove the ſix Days Work to be of the very ſame, and no larger Extent than thoſe are, and leave the whole to the Judgment of the Reader. *There ſhall come in the laſt days ſcoffers, walking after their own luſts, and ſaying, Where is the promiſe of his coming? for ſince the fathers fell aſleep, all things continue as they were from the beginning of the creation. For this they willingly are ignorant of, that by the word of God the heavens were of old, and the earth ſtanding out of the water and in the water, whereby the world that then was, being overflowed with water, periſhed: But the heavens and the earth which are now, by the ſame word are kept in ſtore, reſerved unto fire againſt the day of judgment, and perdition of ungodly men. The day of the Lord will come as a thief in the night, in the which the heavens ſhall paſs away with a great noiſe, and the elements ſhall melt with fervent heat; the earth* 2 Pet. iii. 3, &c. Verſe 10.

alſo, and the works that are therein, ſhall be burnt
Verſe 12, *up. In the day of God the heavens being on fire*
13. *ſhall be diſſolved, and the elements ſhall melt with fervent heat. Nevertheleſs we, according to his promiſe, look for a new heaven, and a new earth, wherein dwelleth righteouſneſs.*

Hcb.i. 10, *Thou, Lord, in the beginning haſt laid the foun-*
11, 12. *dation of the earth, and the heavens are the works of thine hands: They ſhall periſh, but thou remaineſt; and they all ſhall wax old as doth a garment; and as a veſture ſhalt thou fold them up, and they ſhall be changed.*

I have now finiſh'd all thoſe Arguments which to me are fully ſatisfactory, and I think prove beyond rational Contradiction, That not the vaſt Univerſe, but the Earth alone, with its Dependencies, are the proper Subject of the ſix Days Creation: And that the *Moſaick* Hiſtory is not a Nice, Exact, and Philoſophick Account of the ſeveral Steps and Operations of the whole; but ſuch an Hiſtorical Relation of each Mutation of the Chaos, each ſucceſſive Day, as the Journal of a Perſon on the Face of the Earth all that while would naturally have contained. The Sum of all is this:

(1.) The very Words and Coherence of *Moſes* himſelf require ſuch a Conſtruction.

(2.) The Words *Creating*, *Making*, or *Framing* things here us'd, are commonly of no larger Importance than this Propoſition allows.

(3.) The *World*, or *Heaven and Earth*, the Objects of this Creation, are alike frequently reſtrain'd to the ſublunary World, the Air and Earth.

(4.) The *Chaos*, that known Fund and Seminary of the ſix Days Creation, extended no farther.

(5.) On

(5.) On the contrary Suppoſition, the *Time* of the Creation of each Body is extremely diſproportionate to the Work it ſelf.

(6.) On the ſame Suppoſition there is an intolerable Diſorder, *Diſproportion*, and Confuſion in the Works themſelves.

(7.) The final Cauſe of the ſix Days Creation is the ſole *Advantage of Mankind*, the Inhabitant of the Earth.

(8.) Neither the *Intention* of the Author, nor the *Capacity* of the Readers require or could bear any other Account of the Origin of Things.

(9.) Laſtly, Neither the *Deluge* nor *Conflagration*, whoſe Extent appears commenſurate to that of this *Creation*, are of any larger Compaſs than is here aſſign'd.

Upon this View of the whole Matter give me Leave to ſay, That to make the Univerſal Frame of Nature concern'd in the particular Fates and Revolutions of our Earth, is, at this time of day, to demonſtrate either very mean Thoughts of the Ends of the Divine Workmanſhip, and of the Effects thereof in the World; or elſe very proud and extravagant Conceits of our own Worth and Dignity; and at beſt argues a narrow, ignoble and unphiloſophical Soul. 'Tis much ſuch another wiſe and rational Notion, as it would be to ſuppoſe that the whole Terraqueous Globe, with all its Parts and Dependencies, all its Furniture and Productions, was alike concern'd in the *Fates* and *Revolutions* (pardon the Expreſſions) of one ſingle Fly or Worm belonging to it. And we may e'en as fairly allow the entire Dependance of this ſublunary World on the Fortune of ſuch a ſingle *animalculum*; that on its peeping into the World, the whole Earth muſt ariſe out of nothing to afford it a reſting Place; while

it

it was growing, and continued in its Prime, all things below muſt ſpring and flouriſh, rejoice and look gay; on its Decay, all things muſt put on a mournful Countenance; and on its Deſtruction, Univerſal Nature here beneath muſt expire together, and return to its primitive Nothing. This Repreſentation will, I imagine, ſeem bold and extravagant; but 'twill be hard to prove it ſo. And I may appeal to Aſtronomy whether the Earth can be ſhewn to bear as conſiderable a Proportion to the Univerſe, as ſuch a poor *animalculum* does certainly bear to it.

I would not by this, or any thing elſe I have heretofore ſaid in this Diſcourſe, be ſo far miſtaken, as to be believ'd prone to depreciate and debaſe Mankind; or to put a ſlight on all thoſe Works of Nature and Providence which are ſubſervient to it. Neither do I deny that in ſome Senſe all the Viſible World, Heaven and Earth, are ordain'd for our Uſe and Advantage; I fully believe that we are the Creatures of God, of whom he has a tender Regard, and over whom he exerciſes a conſtant, a ſpecial Care and Providence. As I look upon the Souls of Men, in their proper and primitive Perfection, when they came out of their Maker's Hand, to be Noble, to be Glorious, to be Exalted Beings, and perhaps in Capacities or Faculties, in Dignity or Happineſs, not inferior to the Angelick Order; ſo I alſo moſt undoubtedly believe what our Saviour affirms of good Mens State hereafter, that they ſhall be Ἰσάγγελοι *equal to the Angels*; and Υἱοὶ τοῦ Θεοῦ *Children of God himſelf.* While I am perſuaded that the Creation of Man was not effected without the Concurrence and joint Conſulation of the Father and Son; nor his Redemption without the Acceptance of the Father, the Sacrifice and Death of the Son incarnate;

Luke xx. 36.

nate; and the Sanctification and Operation of the Holy Spirit: While I am perſuaded that the Divine Λόγος Θεάνθρωπος has ever ſince the Fall of *Adam* been ſollicitous about our Reconciliation to God his Father, and made it his conſtant Buſineſs, even before as well as ſince his Incarnation, to mediate for us, and take care of our eternal Happineſs: While I believe that by the new Covenant good Men, even in this imperfect State, are eſteem'd *Heirs of God, joint-heirs with Chriſt*, and denominated the *Brethren* and *Friends* of their Glorious Redeemer: While I do not doubt but our human Nature is now, in ſome Senſe, in the Perſon of our Bleſſed Saviour, in Heaven; and there on account of the Union with the Divine Λογος, and as a Reward of that Obedience and Suffering He underwent for us on Earth, advanc'd above the moſt exalted intellectual Orders, at the Right Hand of the Majeſty on High: While I expect the ſame Perſon in the Glory of the Father, coming to judge the World in Righteouſneſs; and Mankind after that final Doom, to be Partaker of everlaſting Joy or Miſery according to their Behaviour here on Earth. While, I ſay, I believe all this, as I moſt ſincerely do, I can be under no Temptation of looking with Contempt upon or of entertaining a mean Opinion of Mankind, or of thoſe Syſtems of Nature and Providence relating to it. Yet, all this notwithſtanding, I think that Opinion I am now expoſing, deſerves no other Character than I have before given of it.

Tho' I look upon Mankind as one Species of very Noble and Glorious Creatures, yet I ſuppoſe it but *One*; and that there may be Millions of others at the leaſt not inferior to him. Tho' I believe human Nature, when Innocent and Perfect, at that Height of Purity and Felicity which

it once had, and by the Chriſtian Diſpenſation may be again advanc'd to, as ſo conſiderable and exalted a Species of Beings; yet withal I look upon it at preſent as under a very different Character. We are all now in a deprav'd, a ſinful, and ſo in a low, a miſerable State. We have by our own wilful Rebellion and Diſobedience, made it neceſſary for God to place us in a ſhort, a vicious, in an uneaſy and vexatious World; where at preſent we are under a ſort of Confinement, in a Place of Trial and Probation; and through a doleful Wilderneſs muſt make our way to the Land of *Canaan*. *Quiſque ſuos patimur manes.* We here feel the ſad Effects and Puniſhments of former Sins. We are left to ſtruggle with great Difficulties, abide many Aſſaults, and undergo ſevere Agonies, e'er we muſt expect to recover our native Dignity, to retrieve our ancient Felicity again; *Exinde per amplum Mittimur Elyſium, & reduces læta arva tenemus.*

1 Cor. xv. 50. Joh. xviii 36. As *fleſh and blood cannot inherit the kingdom of God*, ſo *that Kingdom is not of this World.* I ſee no Reaſon to eſteem the preſent Condition of Mortality as at all conſiderable *in it ſelf*, (tho' in its *Conſequences* it extremely be ſo) in Compariſon of the future Periods of our Beings; and therefore without believing the Earth one of the greateſt or nobleſt Globes in the World, I can ſuppoſe it a very proper and ſuitable Habitation for us at preſent: Moſt wiſely contriv'd, (as it certainly is;) and its Furniture peculiarly and wonderfully adapted to our Needs, Capacities and Operations. I acknowledge that Providence has ſo conſtituted our Earth that we receive ſome Advantages from all, and very great ones from ſome other Parts of the external and viſible World. All which were in the original Creation of things both foreſeen and foredeſign'd by God, and ſo may not im-

pro-

properly be ſo far ſaid to have been made for our Uſe, and appointed to ſerve our Neceſſities. I do not think that thoſe Syſtems of the Univerſe we here ſpeak of, are ever a whit the leſs uſeful to us, or the Benefits we reap from them ever the leſs in themſelves, or unworthy of our Notice and Obſervation, our Admiration and Gratitude to God, becauſe they alſo are ſubſervient to other noble Purpoſes, and are by Divine Providence made uſe of in ſeveral great Deſigns over and above thoſe Advantages we are able to take notice of, or can our ſelves enjoy from them. I cannot imagine that God is peculiarly fond of any particular Parts of the Material Creation, or any more a *Reſpecter of* ſome *Inanimate Bodies*, than of *Perſons*. He no doubt equally makes uſe of them all, according to their ſeveral Kinds and Capacities, in the Service of the various Species of Intelligent Creatures, and in the bringing about the great Periods of Nature, and the Decrees of Heaven; which as they are in great meaſure unknown to us, ſo may they regard Rational Beings very different and remote from us and our Concerns.

If we duly reflect on the Infinite Nature, and unlimited Perfections of the Divine Being, the Creator and Original of all Things; as well as on the Number, Vaſtneſs, and Glory of thoſe his Works which are within our View, we ſhall ſee Reaſon to confeſs, there may be Millions of nobler Intellectual Beings interpoſed between Man and God; and the whole World might be more reaſonably ſuppos'd made at the Creation, and for the ſole Uſe of any one Species of thoſe, than of Mankind. If therefore we be unwilling to be our ſelves excluded from a Share in the Intentions and Deſigns of Heaven, let us not exclude any other rational Creatures from the ſame; but be willing to ſuppoſe

poſe that as this Earth was form'd in ſix Days for the Sake of Man, ſo were the reſt of the Heavenly Bodies, form'd at other proper Times, for the Sake of other of God's Creatures; for whom Providence ought to be allow'd to have taken a proportionable Care, and made a ſuitable Proviſion, as we our ſelves find has been done with regard to us and our Affairs. Let us learn humble and modeſt Sentiments of our ſelves, from the Contemplation of the Immenſity of the Works of God in the World. Which uſeful Leſſon the Holy Pſalmiſt would, by his own Example, teach us; with whoſe Natural and Pious Reflection in this very Caſe, I ſhall conclude this whole Diſcourſe. *When I conſider thy Heavens, the work of thy fingers, the Moon and the Stars which thou haſt ordained; Lord! what is Man, that thou art mindful of him! And the Son of Man, that thou viſiteſt him! O Lord our Lord! How excellent is thy name in all the Earth!*

Pſal. viii. 3, 4.

ver. *ult.*

POSTU-

POSTULATA.

I. THE Obvious or Literal Senſe of Scripture is the True and Real one, where no evident Reaſon can be given to the contrary.

II. That which is clearly accountable in a natural way, is not, without Reaſon, to be aſcrib'd to a Miraculous Power.

III. What Ancient Tradition aſſerts of the Conſtitution of Nature, or of the Origin and Primitive States of the World, is to be allow'd for True, where 'tis fully agreeable to Scripture, Reaſon, and Philoſophy.

BSL

A

New Theory OF THE EARTH.

BOOK I.

LEMMATA.

I. 
ALL Bodies will perſevere for ever in that State, whether of Reſt or Motion, in which they once are, if no other Force or Impediment act upon them, or ſuffer by them.

II. All Motion is of it ſelf rectilinear, and with the ſame conſtant uniform Celerity, if no other external Cauſe diſturb it.

Corollary 1. *'Tis evident from theſe two Propoſitions, that Matter is entirely a paſſive Subſtance.*

Coroll. 2. *No Spontaneous Motion or Action can be the Effect of mere Matter.*

Coroll. 3. *The Soul of Man, whoſe leaſt Power ſeems to be that of Spontaneous Motion, is incorporeal: Which is alſo a neceſſary Conſequence of the firſt Co-*

rollary; for if Matter be perfectly a paſſive Thing, the Soul, which is ſo active a Being, cannot be material.

Coroll. 4. *The Brute Creatures giving all poſſible Demonſtrations of Spontaneous Motion, and of a Principle of Action, cannot reaſonably be ſuppos'd merely Corporeal Machines.*

Scholium. Theſe two laſt Corollaries are only demonſtrative to thoſe, who with me own the Motions and Actions of the Body, properly produc'd and caus'd by the Soul. But as for thoſe Metaphyſical and Abſtract Reaſoners who think God the immediate Author of all thoſe Motions, and the Soul only the *occaſional Cauſe* with *Malbranch*, and his Followers; 'tis not eaſy upon any Subject but purely Mathematical ones to produce any thing which they will own for a Demonſtration: And therefore I ſhall not attempt to demonſtrate theſe Corollaries to them. And indeed I think I need not, for if I be not miſtaken they all own the Immateriality of the Soul of Man, whatever ſome of 'em may dream of the Brutes being nothing but Corporeal Machines, and without any Senſation at all.

III. All thoſe ſingle Corpuſcles of which Bodies are compos'd, do attract other ſingle Corpuſcles of which other Bodies are compos'd, and are alike mutually attracted by them. If this Affection of the Parts of Bodies be conſider'd with reſpect to thoſe towards which the Motion is, 'tis call'd *Attraction*, and they are ſaid to *draw* all others. But if it be conſider'd with reſpect to thoſe which are mov'd, 'tis call'd *Gravitation*, or a *Tendency* in them towards others. Thus in Magnetiſm we imagine a Power of Attraction belonging to the Loadſtone; and in the Iron a Tendency, or (as I may call it, tho' ſomewhat improperly)

Gra-

Gravitation towards it. Tho' indeed, by the way, the Force or Affection being found to be mutual and equal on both Sides, the Terms might juſtly be ſo too; and a Loadſtone might as properly be ſaid to tend or *gravitate* towards the Iron, or Iron to *attract* the Loadſtone, as the contrary; juſt as 'tis in the Point before us. This however will ſerve for an Illuſtration, and explain our Meaning in the preſent Caſe, where all the Parts of Bodies are endued with ſuch a mutual Gravitation and Attraction with reſpect to all others.

Scholium. That no Prejudice nor Miſunderſtanding may ariſe, 'tis to be obſerv'd, That when we uſe the Terms of Attraction or Gravitation, we do not thereby determine the Phyſical Cauſe or Seat of any Effects, as if ſome innate Power or *occult Quality* were to be ſuppos'd in Bodies, (as will appear preſently;) but only uſe ſuch familiar Terms whereby our Meaning may be eaſily underſtood, and the Effects of Nature explain'd, even where the laſt and proper efficient Cauſe is not mechanically aſſignable. Thus we do and may ſay, as before, That the Loadſtone attracts the Iron, or the Iron tends or gravitates to the Loadſtone: not aſcribing thereby any proper or poſitive Quality or Power to theſe Bodies, but for Eaſe of Expreſſion, and for ſupplying what we cannot otherwiſe readily explain relating to them. Thus alſo we commonly ſay, that Stones are heavy, and tend towards the Center of the Earth; and the Expreſſions, rightly underſtood, are true and natural: Tho' perhaps in both Caſes the real Cauſe of thoſe Effects which we aſcribe to ſuch an Attraction, Tendency, or Gravitation, is external, and ſome continual Impulſe from without, not any inherent Power really exiſtent within, is the Original of all. But in ſuch Ca-

ſes, where the true Agent is inviſible or unknown, we muſt have Leave to uſe thoſe Terms which the Matter will bear, or Cuſtom has render'd familiar; without which, uneaſy and troubleſome Circumlocutions will be unavoidable; eſpecially, ſeeing that no Error can hereby creep into our Reaſonings, becauſe 'tis evident, that all the Effects of Nature are exactly the very ſame in the World, and not otherwiſe; which they certainly would and muſt be, if Bodies did really and properly, by their own inherent Virtue or Quality, attract, and were attracted by all others.

IV. This Affection of mutual Attraction or Gravitation is univerſal in *Extent*; all Bodies in the whole World, as far as we have any Means of knowing, whereſoever they are plac'd, being in common ſubject thereto, and concern'd therein.

V. This Affection is alſo univerſal as to the *Kinds* of its Objects; it belonging equally to all the Parts of Matter, of what Sort or Form, in what Figure or Condition ſoever they are: The Difference of Bodies as to Texture and Compoſition, Fluidity and Firmneſs, Motion and Reſt, Bigneſs and Subtilty, or any other ſuch mutable Qualities, not in the leaſt diminiſhing the Influence thereof.

VI. This Affection is alſo univerſal and equable as to *Time*, without all manner of Intermiſſion; without any Increaſe or Diminution in different Ages.

VII. The Quantity of the Force of Attraction at equal Diſtances is exactly proportionable to the Quantity of Matter in the attracting Body; being in reality nothing but the Reſult or Sum of the united Forces of all thoſe ſingle Particles of which 'tis compos'd. Thus, if *A* be double to,

i. e. has twice as much matter as *B*; *A* will have a double Force of Attraction alſo, at equal Diſtances from their Centers reſpectively. If *A* repreſent the Earth, *B* the Moon; if *B* contain but the fortieth Part of the Matter in *A*, (as it really does contain little more;) and a Globe or Ball were plac'd at the ſame Diſtance from the Center of *B*, at which another equal to it were from that of *A*, it would be but the fortieth Part ſo heavy towards *B*, as the other were towards *A*. *Lem.* 36. *infra.*

VIII. This mutual Tendency of Bodies is greater or leſs, according as the Bodies themſelves are nearer to, or farther from each other. The ſame Body more forcibly attracting thoſe which are near, than thoſe which are farther off. So that Stone or Pillar which is with us very heavy, would be comparatively very light, if it were as far diſtant from us as the Moon.

IX. The Proportion of the Increaſe and Decreaſe of this Gravity of Bodies in their Approach to, or Receſs from each other, is neither that of ſimilar Lines nor Solids, but of Superficies or Plains: The Force of Attraction in ſeveral Diſtances being *reciprocally in a Duplicate Proportion* thereof. Thus when the ſame Body, without the Surface of the Earth, is twice as near its Center as it was before, 'tis four times as heavy; when thrice as near, 'tis nine times as heavy; when four times as near, 'tis ſixteen times as heavy as before. In like manner, the ſame Strength which were able to ſuſtain a Body of one hundred Weight here, would at twice our Diſtance from the Earth's Center, be equally able to ſuſtain four hundred Weight; at three times our Diſtance, nine hundred Weight; at four times our Diſtance, ſixteen hundred Weight,

and ſo, *in infinitum*, at all other Diſtances. For as the Squares of the Diſtances increaſe, ſo does the Power of Attraction decreaſe; and as the Squares of the Diſtances decreaſe, ſo does the Power of Attraction at the ſame time increaſe proportionably; as will be prov'd preſently from the known *Phænomena* of Aſtronomy.

Vid. Bentley, Serm. 7. p. 26, &c.

Corollary 1. *From the Compariſon of the two firſt Propoſitions with the ſeven laſt, 'tis evident, That this univerſal Force of mutual Attraction or Gravitation of Bodies is not a Reſult from the Nature of Matter, which being circumſcrib'd within its own Bounds, being incapable of acting at a Diſtance, and beſides being entirely paſſive in its very Eſſence, cannot poſſibly draw others, or tend towards them of it ſelf.*

Coroll. 2. *This univerſal Force of Gravitation being ſo plainly above, beſides, and contrary to the Nature of Matter; on the foremention'd Accounts muſt be the Effect of a Divine Power and Efficacy, which governs the whole World, and which is abſolutely neceſſary to its Preſervation.*

Coroll. 3. *Since the Divine Power is inſeparable from the Divine Eſſence, 'tis evident, the* latter *is Omnipreſent as well as the* former; *and every where equally diffus'd through the Univerſe; and that therefore in God we properly* live, move, and have our Being.

Coroll. 4. *The Divine Nature is Incorporeal and Spiritual, as being equally preſent, and equally powerful in the midſt of the material World and its moſt ſolid Parts, as in thoſe immenſe Spaces which every where diſtinguiſh the Parts, and ſurround the Limits of it.*

Coroll. 5. *The Providence of God in the Natural World is not merely a Conſervation of its Being, or a Non-*

Non-annihilation thereof; but a conſtant, uniform, active Influence or Energy in all the Operations done in it; the very ſame which was exerted in the original Impreſſion of thoſe Laws of Motion on which it depends. The two firſt Propoſitions, 'tis true, ſeem to require only a Continuation of Exiſtence, without any new or continual Action; but the ſeven laſt plainly require more; and no leſs than I am here pleading for. So that if we ſhould ſuppoſe God Almighty to withdraw or ſuſpend this his actual Efficacy and Influence on all the Bodies in the World, tho' he preſerv'd their Being; the whole would immediately be diſſolv'd; and each of the Heavenly Bodies be crumbled into Duſt; the ſingle Atoms commencing their ſeveral Motions in ſuch ſeveral ſtrait Lines, according to which the Projectile Motion chanc'd to be at the Inſtant when the Divine Influence, (the Cauſe of Gravitation, and all ſuch other Affections of Matter) was ſuſpended or withdrawn.

Coroll. 6. *Mechanical Philoſophy, which relies chiefly on the Power of Gravity, is, if rightly underſtood, ſo far from leading to Atheiſm, that it ſolely depends on, ſuppoſes, and demonſtrates the Being and Providence of God; and its Study by Conſequence is the moſt ſerviceable to Religion of all others.*

Coroll. 7. *The* Epicureans, *who endeavour'd to caſt the Belief of a Providence at leaſt, if not of a Deity out of the World by their Atomical or Mechanical Philoſophy, very fooliſhly miſunderſtood and abus'd their own Principles; which in reality, when rightly comprehended, do with the greateſt Evidence and Conviction eſtabliſh them both, beyond all other whatſoever.*

Coroll. 8. *There is no ſuch Ethereal Subſtance, or Subtil Matter, pervading the Pores of Bodies, which being it ſelf free from the Law of Gravity, or endu'd with a leſs Proportion thereof, might be ima-*

gin'd to be the Cauſe of it in other Bodies, or the Means of any other Effects in the World.

Coroll. 9. *A* Vacuum, *or Space diſtinct from Matter, is neceſſary to be admitted. For were the World equally full every where, ſince all Matter is equally heavy in Proportion to its Quantity, there could not poſſibly be any Difference in the Specifick Gravity of Bodies; it being on the* Hypotheſis *of a* Plenum *impoſſible that a Cube of Gold ſhould be heavier than an equal Cube of Air, and its contained ſubtil Matter together; and by Conſequence equally impoſſible that the former ſhould over-balance or deſcend in the latter, which yet all experience ſhews it really does. So that a* Plenum *is ſo far from accounting for the* Phænomenon *of Gravity, as ſome would have it, that it utterly ſubverts the Poſſibility of it; and while the laſt is evident, the firſt muſt needs be indefenſible.*

X. From the Uniform Projectile Motion of Bodies in ſtraight Lines, and the Univerſal Power of Attraction or Gravitation, the curvilinear Motion of all the Heavenly Bodies does ariſe. If a Body, as B, be moving uniformly along the Line D C, from D to C; and another Body A be preſent, this latter Body A muſt draw the former B from its ſtraight Line D C, and by doing ſo continually, while at the ſame time the Body B retains its Projectile Force along a ſtrait Line in every point of its Courſe, muſt make the Line of its real Motion a bent one, and change its rectilinear into a curvilinear Trajectory.

Τὸν δὲ Ἀναξαγόραν εἰ πεῖν ὡς ὅλῳ ὁ οὐρανὸς ἐκ λίθων συγκέοιτο· τῇ σφοδρᾷ δὲ περιδινήσει συνεστάναι, καὶ ἀνεθέντα καταγνέχθήσεσθαι. Dixit Anaxagoras Cœlum omne ex lapidibus eſſe compoſitum, ac vehementi circuitu conſtare, alias remiſſione lapſurum. *Laertius. Lib. II. Segm.* 12.

Coroll. *Hence we may learn what is that* conatus recedendi à centro motûs *in revolving Bodies, and*

and in what Sense 'tis to be understood. For since, as we have already seen, all Bodies have a Vis centripeta, *or Propension towards one another, 'tis impossible they should of themselves, in as proper a manner, have a contrary Propension, or* Vis centrifuga, *an Endeavour of avoiding one another, (if these improper Terms will be allow'd me.) The true Meaning therefore of this* Attempt *or* Endeavour *to get farther off the Center of Motion is only this, That all Bodies being purely Passive, and so incapable of altering their uniform Motion along those strait Lines, or Tangents to their Curves, in which they are every Moment, still tend onwards in the same Lines, and retain their Propension or Effort towards that rectilinear Motion all the Time they are obliged to move in Curves; and consequently at every Point of their Course, endeavour to fly off by their Tangents. Now the Parts of the Tangent to which this Endeavour is, being farther from the Center than those of the Curves to which the Bodies are actually forc'd, an Attempt to go on in the Tangent may be, and is stil'd an* Attempt to *go farther off or* recede from that Center; *tho' from no other Affection than that of Inactivity, or of persevering in a rectilinear Motion. So that tho' the* Vis centripeta, *or Power of Gravitation be an active and positive Force, continually renew'd and impress'd on Bodies; the* Vis centrifuga, *or* conatus recedendi à centro motûs, *is not so, but the mere Consequent and Result from their Inactivity. This is evident in Bodies revolving in* Ellipses *about one of the* Foci, *in their Descent towards it; where the Tangent being oblique to the Radius, or Line, from the Point of Contact to the* Focus, *this very* conatus recedendi à centro motûs, *by urging it along the Tangent, will for some Time make it approach nearer to the* Focus; (*tho' not so much nearer as by its revolving in the Ellipsis it self;*) *as may be seen in the Scheme, if a Body at*

Schem. 1. Fig. 6. B *were moving towards* L *about the Focus* H. *And this Explication is confirm'd by all Experience. For let a Stone be let looſe from the Sling, or any revolving Body be diſengag'd from the Force which retain'd it in its Curve, and it will not properly go from the Center, but only paſs along the Tangent in which it was moving, as if there were no ſuch Center near it at all.*

XI. A Rectilinear or Projectile Motion of the Planets along the Tangents to their Orbits, (which when once begun, always uniformly continues,) join'd or compounded with their Gravitation to the Sun, in the common Center, or rather *Focus* of our Syſtem, is the Original of all the Planetary Revolutions about him. Thus if *Jupiter*, for inſtance, repreſented by B, were moving uniformly along the Line DC, from D towards C; if the Sun A were abſent, the Planet would paſs on ſtraight from B to C, with the ſame Velocity with which it had come from D to B. But if upon its Arrival at the Point B, the Sun in the Center or *Focus* A begin to affect it, the Planet, by the Sun's Attraction, muſt be drawn from a rectilinear to a curvilinear Courſe; and be oblig'd, if the Sun's Power be great enough, compar'd with the Planet's Velocity, to revolve about him, and that, the attractive Force always continuing, for ever after. The Caſe is juſt the ſame as if B were a Stone in a Sling, A the Hand of the Slinger, (by the Help of the Strings united together, and repreſented by the Line A B,) whirling it round continually. For as the Stone at its coming to the Point B, were it let looſe and left to it ſelf, would fly off in the ſtraight Line or Tangent BC, yet by Force is ſtill retain'd at an equal Diſtance from the Hand of the Slinger, and compell'd to revolve in a kind of Circle; ſo 'tis here.

Fig. 3.

The

The Attraction of the Sun in the common Center or *Focus* compels all the Planets, which of themſelves would paſs along their ſeveral Tangents, to revolve about it ſelf, and deſcribe their ſeveral curvilinear Orbits. And the Caſe is the ſame in the ſecondary Planets with reſpect to their primary ones, about which they revolve in the ſame manner as they all both Primary and Secondary revolve about the Sun, in the common Center or *Focus* of the entire Syſtem.

Coroll. 1. *Hence 'tis manifeſt, that the Law of univerſal Attraction once eſtabliſh'd, unleſs the Divine Power had put the Planets into a ſuitable Motion in right Lines, they muſt ſoon have been drawn downwards, and fall'n into the Sun: And ſtill, if their Motions ſhould be entirely ſtopp'd and ceaſe, the ſame muſt happen; and they muſt not only be uncapable of thoſe noble Uſes to which they are now ſubſervient, but utterly periſh in the Violence of the Sun's ſcorching Heat. The preventing of which therefore ought juſtly to be attributed to the Wiſdom and Power of God in the Conſtitution of the World.*

Coroll. 2. *If the World be limited and finite in its Extent, 'tis ſo in its Time alſo; and ſo* vice versâ *if Eternal in its Time, 'tis Infinite alſo in its Extent. For ſince all Matter (as far as we have any Means of knowing, and ſo in Reaſon all Matter whatſoever) is endu'd alike with a Power of Attraction; and muſt all thereby, without proper Motions along ſtrait Lines, at laſt meet in the common Center of Gravity of the whole; and ſince withal the other Syſtems of fix'd Stars, ſuppos'd here finite, retain their Site and Diſtance from each other, and thence appear not to have any projectile Motion along ſtrait Lines to prevent the ſame; had the Frame of the World been Eternal, the Effect abovemention'd muſt have, innumerable Ages ago, really come to paſs; and all the Matter*

of

of the entire Univerſe compos'd one ſingle dull and unmovable Heap or Maſs in the common Center of Gravity of the whole; which not having happen'd, demonſtrates the Impoſſibility of the Eternity of the World, and the Neceſſity of admitting its Production in Time by the Power of God. Since therefore 'tis unreaſonable to ſuppoſe the Material World truly unlimited in Extent, 'tis neceſſary to ſuppoſe it no more unlimited in Duration alſo. And this Reaſoning is unavoidable, unleſs we allow the moſt invariable and conſtant Property of Matter in our Syſtem to be peculiar *to it, and ſo to be a voluntary Conſtitution of God Almighty; or at leaſt that a miraculous Providence does hinder the foremention'd Effect continually. So that upon the whole, as the very Learned Dr.* Bentley *has obſerv'd, either the Divine Power in Creating, or peculiar Providence in Governing the Frame of Nature, is on theſe undoubted Principles for ever eſtabliſh'd.*

Serm. 7. p. 37, 38.

XII. When the Projectile Motion of the Planets is in its Direction, perpendicular to a Line from the Sun, and in its Degree of Velocity, ſo nicely adapted and contemper'd to the Quantity of the Sun's Attraction there, that neither can overcome the other, (the Force of Gravitation towards the Sun, and the Celerity of the Planets proper Motions being properly *in Æquilibrio*,) the Orbits of ſuch revolving Planets will be compleat Circles; themſelves neither approaching to, nor receding from the Sun, the Center of their Motions. And the Caſe is the ſame in the Secondary Planets about their Primary ones. Thus 'tis ſuppoſable, that the Velocity of all the Planets about the Sun, was exactly accommodate originally to his Power of Attraction, and that their primitive Orbits were perfect Circles; from which at this Day they do not mightily differ. Thus, however, *Jupiter*'s four

four Satellits or little Moons have their Motions ſo exactly proportion'd to their Gravitation to him, that their Orbits, as far as the moſt nice Obſervations can judge, are perfect Circles; they keeping at an equal Diſtance from his Center in all the Points of their Courſes about him.

XIII. When the Projectile Motion is not adapted to, but is either too ſwift or too ſlow for the Attraction towards the Central Body, the Orbits deſcrib'd will be *Ellipſes*; and in the former Caſe, when the Projectile Motion is too ſwift, the Orbit will be bigger than the Circle before-mention'd; and the nearer *Focus* of the *Ellipſis* will be coincident with the Central Body; and in the latter Caſe, the Orbit will be leſs than the Circle, and the farther *Focus* of the *Ellipſis* will be coincident with that Central Body. Thus if the Celerity of B, be exactly correſpondent to the attractive Force of the Central Body A, neither will prevail, and the Body, preſerving an equal Diſtance from the Center, will deſcribe the Circle BeEb. If the Celerity be greater, it will overcome the Attraction, and caſt it ſelf farther off the Center for ſome Time, and ſo revolve about it in the larger *Ellipſis* BHFG; the Central Body, poſſeſſing that *Focus* A, which is neareſt the Point B, where the Attraction began. But if the Celerity be ſmaller, the Attraction of the Central Body A, will be too hard for it, will force it for ſome Time to come nearer, and to deſcribe the leſſer *Ellipſis* BKLI; the Central Body poſſeſſing that *Focus* A which is fartheſt from the Point B, where the Attraction began; as will be very plain from the Conſideration of the Figure relating hereto. Fig. 3.

Scholium. 'Tis indeed poſſible that the Celerity of Bodies may be ſo great, compar'd with the Force of Attraction to the Central Body, as to caſt them off

off with ſuch Violence, that the Attraction will never be able to bring them round, or make them revolve about it: In which Caſe, the Orbits deſcrib'd will be one of the other Conick Sections, either *Parabola's* or *Hyporbola's*; according to the leſs or greater Violence with which the Bodies are thrown; and the Central Body will poſſeſs the *Focus* of ſuch a Figure. But no *Phænomena* of Nature perſuading us that *de facto* any of the Heavenly Bodies do deſcribe either of thoſe Lines, (tho' Comets *Ellipſes* come near to *Parabola's*, of which hereafter;) I ſhall not farther inſiſt upon them here. For if what has been ſaid of *Ellipſes* has been well underſtood, the reſt can have no great Difficulty in it.

XIV. Several Bodies moving about the ſame Central one, tho' their primitive Velocity were equal, and Direction alike; yet if they be at different Diſtances from it, they will deſcribe Figures of different Species about it. For ſince that determinate Degree of Velocity, which at one Diſtance were juſt commenſurate to the Central Bodies Attraction, and ſo would produce a circular Orbit, muſt at a farther Diſtance be too hard for it, by reaſon of the Diminution of the Attraction there; an *Elliptical* Orbit muſt be deſcrib'd; whoſe nearer *Focus* would be coincident with the Central Body. In like manner, if the ſame determinate Degree of Velocity were at a nearer Diſtance, where the Central Attraction is augmented, it would be too little for the ſame; and an *Elliptical* Orbit muſt be deſcrib'd, whoſe farther *Focus* would be coincident with the Central Body. This cannot be difficult, if what has been hitherto ſaid have been rightly apprehended. For ſince the *Species* of the Planetary Orbits depend ſolely on the Proportion between the Attraction towards the Central Body, and the Velocity of the Projectile Motion;

as

as that Proportion remaining at any Diſtance whatſoever, the Bigneſs of the Orbits will be various, but the *Species* the ſame; ſo when that Proportion is chang'd, the *Species* of the Figures muſt be chang'd alſo: Which being done, in a given Velocity, by the various Force of Attraction in ſeveral Diſtances from the Center, as well as by the various Velocity, at a given Diſtance, of which before; 'tis evident the *Species* of the Orbits will be different in this, as well as in the former Caſe.

Coroll. *The greater Diſproportion there is between the Quantity of Attraction, and the Velocity of the revolving Bodies, in the Circumſtances mention'd in the two laſt Propoſitions, the farther from a Circular, and the more Oblong and Excentrical will the Orbits deſcrib'd be. And the greater Approach to Correſpondence there is, the nearer to Circular, and the leſs Oblong and Excentrical will the ſame Orbits be.*

XV. The circular Orbits of Planets depend not only on the exact Adjuſtment of the Projectile Velocity to the attractive Power of the Sun, but upon the Direction of the ſame Projectile Motion, at the original Commencing of the Attraction. Thus where the Planet is in its own Tangent neither Aſcending nor Deſcending, and the Angle preceding CBA is a right one; which we have hitherto ſuppos'd; from the Correſpondence of the Velocity to the Attraction, the Orbits will be perfect Circles. Otherwiſe, when the Direction of the Motion is oblique, in any meaſure aſcending from, or deſcending to the Central Body, and the preceding Angle CBA obtuſe or acute, the Planet, tho' its Velocity were exactly adapted to the Attraction of the Central Body, would revolve in an *Ellipſis*; and the Point B, where the Attraction began, would be the End of the leſſer *Axis* thereof. All which will become eaſier by what we Fig. 3.

ſhall preſently come to explain of that Figure.

Coroll. *From theſe four laſt Propoſitions, compar'd with the preſent Syſtem of the Planetary World, 'tis obvious to take notice of the wiſe and careful Providence of God, and his moſt accurate Contrivance in the Diſpoſal and Regulation of the whole: Whereby the primary Velocity of the Planets, their ſeveral Diſtances from the Central Bodies, and the original Direction of their Motions, have been each ſo nicely adjuſted and adapted to the Force of Attraction every where, that all the Orbits of the Planets became thereby either truly circular, or not very much different from the ſame. Which Remark will appear the more juſt, and conſiderable, if we reflect on the infinitely different Degrees of Velocity, and oblique Direction; with the immenſly various Diſtances from the Central Bodies; equally poſſible with thoſe which were ſo fitly pitch'd upon; and obſerve to what noble and valuable Uſes theſe Bodies are now ſubſervient, which, without the forementiond Exactneſs of Contrivance in each Particular, could not have been provided for. All which demonſtrate the great Neceſſity of intereſting the Divine Providence; and the Worthineſs of its ſo careful Interpoſition in ſuch Caſes.*

Vid. Bentley, Ser. 8.

Scholium. In order to the eaſier Apprehenſion of the Motions of the Celeſtial Bodies, and of thoſe Things already ſaid, or to be ſaid hereafter, relating to them, 'twill not be improper in this Place to give ſome Account of the Generation, Nature, and eaſy Properties of *Ellipſes*; in which, (including the Circle, as is commonly done) all the Heavenly Bodies, (as far as we have hitherto Reaſon to believe) revolve perpetually; ſo far at leaſt as will be directly ſubſervient to our preſent Purpoſe, and give any Light to the following Theory. Take therefore, from the famous *Des Cartes*, this natural and obvious Deſcription

Carteſ. Dioptr. c. 8, &c.

or

or Delineation of an *Oval* or *Ellipſis*; which tho' familiar to the Gardiner and Joyner, is a very good one; and gives as juſt and complet an *Idea* of it as any other whatſoever.

Take a ſmall Cord or Packthread, which is very pliable, and yet not eaſily ſtretch'd beyond its natural Length; Tye the two Ends together, by which means it will be a ſort of round or circular Circumference mutable into all Figures. Let two Pins or Nails, H and I, be driven into a plain Board or Table; put the Cord or Packthread round the two Pins or Nails H and I, and with a Pencil or any ſuch thing, (which, as it is drawn along, will make a ſmall Stroke,) in your Hand, turn it round about the two Pins or Nails, as about a double Centre, till you return to the Point from whence you began. Thus if B be the Point where you begin the Delineation, continue it either way, along OFMKNEPD, or DPENKMFO, till you return to B again. By this means the Point of your Pencil will deſcribe ſuch a Curve as is here repreſented, and is call'd an *Ellipſis*. The Nature and Properties whereof, as far as at preſent we ſhall conſider the ſame, are as follow. Fig. 6. Fig. 6. Schem. 1.

(1.) The Species of the *Ellipſis* depends on the Proportion there is between the length of the Cord, and the diſtance of the two Centres H and I: And conſequently, wherever that determinate Proportion is given, the Species is given alſo, tho' the Bigneſs and Capacity be chang'd; But where that Proportion is not given, as, the Length of the Cord remaining, where the Diſtance of the Centres is chang'd; or, that Diſtance remaining, the Length of the Cord is chang'd; or both are chang'd, but not in the ſame Proportion; in all theſe Caſes the Species of the *Ellipſis* is different. Thus in particular where the Diſtance of the Centers, or the

Line H I, is greater in proportion to the Length of the Cord, there the *Ellipſis* is farther from; and where 'tis leſs, the *Ellipſis* is nearer to a Circle. All which is ſo obvious on a very little Conſideration of the Delineation, and Figure, as 'tis repreſented in the two different Schemes, that no more words need be us'd about it.

(2.) If in a conſiderably large Figure the two Points H and I be very near together, it will be ſcarce diſtinguiſhable from a Circle; and in any Figure if they be ſuppos'd to unite, and be coincident, the Eccentrical Curve will become Concentrical; and the *Ellipſis* degenerate into a Circle; as perfect an one, as any drawn with a Pair of Compaſſes. Whence we ſee why a Circle is reckon'd among the *Ellipſes*; and how it may be generated by a Way very like that made uſe of in their Delineation.

(3.) As when the Points H and I are coincident, the *Ellipſis* loſes its Eccentricity, and Denomination, and commences a Circle; ſo, on the other Hand, if the Diſtance H I be indefinitely lengthened, while the difference betwen that Diſtance and the Length of the Cord, (equal to D H and I K, or double to one D H; as, the Pencil at D, is eaſily perceiv'd,) remains the ſame, the *Ellipſis* will go thro' all Species; and at laſt become indefinitely Oblong and Eccentrical; and one half of it, as F D E, will degenerate into the very ſame Figure we call a *Parabola*. For as all Degrees of Eccentricity make *Ellipſes* of all Species; ſo no Degree of Eccentricity makes a Circle; and an indefinite or infinite Degree of it make a *Parabola*: Which, tho' we have no neceſſity to conſider it ſo diſtinctly in this place; (none of the heavenly Bodies, as far as we yet know, deſcribing truly ſuch a Line, as has been already obſerv'd;) yet on

on account of the Comets Orbits, which are nearly *Parabolical*, at leaſt deſerv'd our Notice; and the firſt Figure will ſhew an Example of it. Fig. 1.

(4.) An *Ellipſis* being deſcrib'd about two Points, as a Circle about one, or thoſe two united; hence may appear in ſome meaſure the Nature of theſe Points. They are indeed called the *Foci* or *Umbilici* of the Figure, but might not unfitly be nam'd the *Centers* thereof. And how naturally each of them bears much the ſame reſpect to the *Elliptick* Periphery, that the *Center* does to the circular one, is partly obvious from the foregoing Delineation; and of this thoſe who are acquainted with the *Conick Sections* cannot be ignorant. And accordingly, if the Name *Center* had not by Cuſtom in the *Ellipſis* been borrowed from the Circle on account of its Poſition, rather than ſome other Properties of it, and thence apply'd to the middle Point in the *Ellipſis*; it might very fitly, as has been before ſaid, have been given to the two Points H and I, now ſtil'd the *Foci* or *Umbilici* thereof. And by the ſame Reaſon, the correſponding ſingle Points, going under the ſame Names in the *Parabola* and *Hyperbola*, would deſerve and challenge the ſame Denomination. And this is ſo agreeable to the true Syſtem of the Planetary World, that in the new Aſtronomy, (and thence in theſe Papers,) the Stile is ſometimes continued; and 'tis not unuſual, I may add, not very improper, to ſay, That the Sun, the common *Focus* or *Umbilicus* of all the Celeſtial *Elliptick* Orbits, is in the *Center* of our Syſtem, or poſſeſſes the *Center* of the Planetary World.

(5.) Tho' all the Lines paſſing through the Center in a Circle, being equal, are equally conſiderable; yet 'tis otherwiſe in the *Conick Sections*; where that Line through the *Focus* alone which

cuts the principal *Axis* at right Angles, is remarkable above all the reſt; and in very many Caſes peculiarly conſiderable. This Line is ſtil'd the *Latus Rectum* or *Parameter*, and in the *Ellipſis* is, after the longer and ſhorter *Axis*, the third Proportional. Thus in the Figure before us, as D K is to E F, ſo is the ſame E F to O P or M N, the *Latus Rectum* or *Parameter* thereof, ſo famous with the Writers on the *Conick Sections*.

(6.) The Subtenſe of the Angle of Contact *b d*, parallel to the Diſtance from the *Focus* B H, at an equal perpendicular Diſtance from the Point of Contact B, if that Diſtance be ſuppos'd infinitely ſmall, is in all Parts of the ſame *Ellipſis*, or other *Conick Section*, equal to it ſelf. The Truth and Uſe of which Property is not yet ſufficiently known.

(7.) If from any Point in the Circumference of an *Ellipſis* as B, Lines be drawn to each *Focus*, B H, B I; theſe two Lines taken together are always equal to themſelves, and to the longer *Axis* K D: As the bare Delineation of the Figure does plainly manifeſt.

(8.) If the Angle made by the Lines to the *Foci* from any certain Point, H B I, be divided in the midſt by the Line B A; the ſaid Line B A will be perpendicular to the Tangent, or Curve at the Point of Contact; and ſo the Angles A B L, A B G, will be right ones, and equal to each other, as conſequently will equal Parts of them, L B H, I B G.

(9.) A Line drawn from either *Focus* to the End of the leſſer *Axis*, H E or I E, is equal to half the longer *Axis* C D or C K; as is evident by the laſt Particular but one. And the ſame Line is Arithmetically the middle Proportional between the greateſt and leaſt Diſtance from the ſaid *Focus*.

Thus

Thus H E, for inſtance, is juſt ſo much longer than H D, as 'tis ſhorter than H K; the Difference in both Caſes being the *Eccentricity* H C or C I.

(10.) The Tangent of an *Ellipſis* L G is never perpendicular to a Line drawn from the *Focus*, except at the two Points which terminate the longer *Axis* D and K. And if you imagine the Point of Contact B, with the Radius B H, and the Tangent L G, to move round the *Ellipſis* together, from B towards D; the preceding Angle, H B L, will, in the Deſcent from K by F to D, be an acute one; (its Acuteneſs increaſing from K to F, and as much decreaſing from F to D;) and in the Aſcent from D by E to K an obtuſe one; (its Obtuſeneſs increaſing from D to E; and as much decreaſing from E to K:) In both Semi-revolutions arriving at Rightneſs at the Points D and K, the Ends of the longer *Axis* alone; as was here to be obſerv'd. Fig. 6. Schem. 1.

(11.) The *Area* of an *Ellipſis* is to that of a circumſcrib'd Circle, (whoſe Diameter is equal to the others longer *Axis*,) as the ſhorter *Axis* of the *Ellipſis* is to the ſame longer *Axis* or Diameter.

(12.) If the Circumferences of a Circle, and of an *Ellipſis*, be equal; the *Area* of the Circle is the greater. It being known, that of all Figures, whoſe *Perimeters* are equal, the Circle is the moſt capacious.

(13.) If an *Ellipſis*, by becoming infinitely Eccentrical, degenerate into a *Parabola*; the *Latus Rectum* or *Parameter* will be four times as long as the neareſt Diſtance to the *Focus* thereof. Thus *r s* is four times as long as H t. Fig. 1.

XVI. All Bodies which, together with a Projectile or Uniform Motion along right Lines, are continually attracted or impell'd towards one certain Point or Center, let the Attraction or Impulſe

be of what Nature or Quantity ſoever, will always, (no other Force interpoſing) by a Line drawn from that Center to themſelves, deſcribe equal *Area's* in equal Times; and ſo proportionable *Area's* in proportionable Times; through all Parts of their Courſes. Thus if the *Area* deſcrib'd the firſt Minute were equal to a thouſand ſquare Feet; whether the Bodies came nearer, or went farther off, it would always in a Minute be equal to the ſame thouſand ſquare Feet; in two Minutes double, or two thouſand; in three Minutes treble, or three thouſand; in four Minutes quadruple, or four thouſand; and ſo for ever proportionably. The Demonſtration of this noble and exceeding uſeful *Theorem*, is both eaſy and pleaſant: But that not being my preſent Buſineſs, I ſhall, as in the reſt, refer the Reader to the Great Author himſelf for Satisfaction.

Sir *Iſaac Newton's* Philoſ. Nat. Princip. Math. p. 37, 38, 39.

XVII. All Bodies, *vice verſâ*, which revolve in Curves; and by a Line drawn from themſelves to a certain Point or Center, deſcribe *Area's* proportionable to the Times of Deſcription, are attracted or impell'd continually towards that Point or Center.

Corollary. *Since therefore Lines drawn from every one of the Planets to the Sun, deſcribe perpetually* Area's *proportionable to the Times of Deſcription; as is own'd by all Aſtronomers; 'tis certain that, beſides their ſeveral projectile Motions, they are every one continually attracted or impell'd towards the Sun; and from ſuch compounded Forces revolve about him. And the Caſe being the ſame in the* Moon *about the* Earth; *the* Circumjovials *about* Jupiter; *and the* Circumſaturnals *about* Saturn; *this Corollary equally belongs to them alſo.*

XVIII. If Bodies from a projectile Motion, and an Attraction or Impulſe to a Point or Center, move about the ſame in a regular *Spiral* Line, which

which interſects every Radius in the ſame Angle; the Force of the Attraction or Impulſe, at different Diſtances from that Center is *reciprocally as the Cubes* of ſuch Diſtances: And *vice verſâ*, if the Force of Attraction or Impulſe to any Center be *as the Cubes of the Diſtances reciprocally*; Bodies revolving about the ſame, unleſs they move in Circles, muſt deſcribe *Spiral* Lines, interſecting Radii in the ſame Angle.

XIX. If Bodies from a projectile Motion and an Attraction or Impulſe to a Point, move about it, being the *Center* of an *Ellipſis*, in the Periphery of the ſame *Ellipſis*; the Force of Attraction is *directly as the Diſtance* from ſuch a Center: And *vice verſâ*, if the Force of Attraction or Impulſe to any Point be *as the Diſtance* from the ſame *directly*, Bodies revolving about it muſt deſcribe an *Elliptick* Figure; with whoſe Center the fore-mention'd Point will be coincident.

XX. If Bodies from a projectile Motion, and an Attraction or Impulſe to a Point, deſcribe an *Ellipſis* about that Point, coincident with one of its *Foci*; the Force of Attraction towards that *Focus* is *reciprocally in a duplicate Proportion*, or *as the Squares of the Diſtances* from the ſame. And *vice verſâ*, if the Force or Attraction to any Point be in a *duplicate Proportion*, or *as the Squares of the Diſtances* from the ſame *reciprocally*; Bodies revolving about the ſame muſt deſcribe *Ellipſes* about it, coincident with one of the *Foci* thereof.

Corollary 1. *Where Bodies revolve about any Point or Central Body, From the Figure deſcrib'd, and the Situation of the Point or Central Body, the Law of Attraction or Impulſe tending towards the ſame is diſcovered. And* vice verſâ, *where the Law of Attraction or Impulſe is known, the Figure to be deſcrib'd by revolving Bodies, and the Situation of*

the Point or Central Body, towards which the Attraction or Impulse is, with respect to such Figures, is à priori *discover'd also.*

Coroll. 2. *None of the Heavenly Bodies describing either* Spiral *Lines, or* Ellipses *about their* Centers, *'tis certain no Law of Gravitation in a* triplicate reciprocal, *or* direct simple Proportion of the Distance *from the Central Body, obtains in the Planetary World.*

* Coroll. Lem. 17. prius.

Coroll. 3. * *All the Planets Revolutions arising from the Composition of their projectile Motion and Gravitation towards the Sun; and they all describing* Ellipses *about him, in the common* Focus *of all their Orbit, as is evident from Astronomy; 'tis hence certain, that the Force of their Attraction or Impulse towards the Sun, is in a* duplicate Proportion of their Distances reciprocally.

Coroll. 4. *The Case being the same as to the* Moon *about the* Earth, *and the* Circumsaturnals *about* Saturn; *this last Corollary belongs equally to them also. But* Jupiter's *Satellits revolving in compleat Circles, are incapable of affording Evidence in his Case.*

XXI. If several Bodies revolve about the same central attractive Body at several Distances; and the *periodical Times* in which they revolve be to each other, as the *Squares of their Distances* from the same; the Force of Attraction or Impulse to that central Body is in a *triplicate Proportion*, or *as the Cubes* of such *Distances reciprocally*; and *vice versâ*, if the Force of Attraction or Impulse be *in a triplicate Proportion*, or *as the Cubes* of their *Distances reciprocally*, the periodical Times of Revolution will be to each other, as the *Squares of their Distances* from the same central Body.

XXII. If several Bodies revolve about the same central attractive Body, at several Distances, in *Circular* or *Elliptick* Orbits; and the *periodical Times* of

of revolving be all *equal*; the Force of Attraction or Impulse towards the central Body is *directly, as the Distances* from the same.

XXIII. If several Bodies revolve about the same central Body, in *Circular* or *Elliptick* Orbits, at several Distances; and the Velocities be in *half the Proportion*, or *in a subduplicate Proportion of their Distances reciprocally*; or, which is all one, the *Squares of the periodical Times of* revolving be to each other as the *Cubes of the* middle *Distances* from the same central Body; the Force of Attraction or Impulse towards the same is in a *duplicate Proportion of the Distances* from the same *reciprocally*.

Corollary 1. *Where several Bodies, from a projectile Motion, compounded with a Gravitation towards a central Body, revolve about the same at several Distances; from the Proportion there is between the periodical Times of revolving, compar'd with the Distances from the central Body, the Law of Gravitation tending towards the same is discover'd; and,* vice versâ, *where the Law of Gravitation is known, the Proportion between the periodical Times compar'd with the Distances from the central Body is,* à priori, *discover'd also.*

Coroll. 2. *None of the Heavenly Bodies* Periodical Times *of revolving being to each other as the* Squares of their Distances *from the central Body, nor equal to one another; 'tis certain, as before, that no Law of Gravitation in a* triplicate reciprocal, *or* direct simple Proportion of the Distances *from the central Body, obtains in the Planetary World.*

Coroll. 3. * *All the Planets Revolutions arising from the Composition of their projectile Motion and Gravitation towards the* Sun; *and the* Squares of their periodical Times *of revolding being to each other* as the Cubes of their *middle* Distances *from him;*

* Coro'l. Lem. 17. prius.

him; 'tis hence certain, as before, that the Force of their Attraction or Impulse towards the Sun, *is in a* duplicate Proportion of their Distances reciprocally.

Coroll. 4. *The Case being the same as to the* Circumjovials *about* Jupiter, *and the* Circumsaturnals *about* Saturn; *this last* Corollary *belongs equally to them also. But the* Moon *being a single Planet revolving about the* Earth, *is incapable of giving Evidence in her Case.*

Coroll. 5. *As before, the Law of Gravitation being demonstrated from the Planets revolving in* Ellipses *about the central Bodies in one of the* Foci; *the Proportion between the periodical Times, compar'd with the Distances from the central Bodies, was deducible* à priori; *so* vice versâ, *the periodical Times compar'd with the Distances demonstrating the Law of Gravitation, thence the Necessity of the Planet's Revolution in* Ellipses, *about the central Bodies in one of the* Foci *is* à priori *demonstrated also.*

Coroll. 6. *'Tis certain, That the Annual Motion belongs to the Earth about the Sun, not to the Sun about the Earth. For since from the Moon's Orbit, and the Planets Orbits and periodical Times, 'tis certain, that the Law of Gravitation towards the Earth, and towards the Sun is the same; and by consequence, all the periodical Times of Bodies revolving about each of them in the same Proportion to one another, compar'd with their several Distances from each of them: On which* Hypothesis, *this Proposition suits the* Phænomena *of Nature, the same must be the true one, and to be fully acquiesc'd in. Now 'tis known, that on the* Hypothesis *of the Earth's Annual Motion, her periodical Time exactly suits, and is so between that of* Venus *and* Mars, *as the Proportion observ'd through the whole System, and demonstrable* à priori, *withal, exactly requires; but on the other* Hypothesis *'tis enormously different. For since the Moon undoubtedly,*

and

and on this Hypotheſis *the Sun alſo, revolves about our Earth; and ſince the Diſtance of the Sun is to that of the Moon as about* 81000000 *to* 240000 *or as about* 337 *to* 1; *and the Moon's periodical Time leſs than* 28 *Days; the periodical Time of the Sun is by the* Rule of Three *diſcoverable thus: As the Cube of the Moon's Diſtance,* 1 equal to 1, *to the Cube of the Sun's* 337 equal to 38272753, *ſo muſt the Square of the Moon's periodical Time* 28 *Days* equal to 784, *be to the Square of the Sun's periodical Time,* 30005838352; *whoſe Square Root,* 173510, *are Days alſo, being ſome Days more than* 475 Julian *Years: So that on the* Hypotheſis *of the Sun's Revolution about the Earth, its periodical Time muſt undoubtedly be* 475 *Years, which all Experience atteſts to be but a ſingle one. So that at length the Controverſy between the* Ptolemaick and Pythagorean Syſtems *of the World is determin'd; and the Earth's Annual Motion for ever unqueſtionably eſtabliſh'd.*

Coroll. 7. *'Tis certain that thoſe Opake Maſſes which ſometimes appear at the Sun, are not Planets, revolving at any the leaſt Diſtance from him, but Spots or* Maculæ *adhering to him; for whereas they revolve but once in a little above twenty five Days; on a like Calculation it will appear, that a Planet near the Surface, as theſe muſt be, cannot have three Hours allow'd for its periodical Revolution; which being ſo different from the foremention'd Space of twenty five Days, quite decides that Controverſy, and demonſtrates thoſe Maſſes to be real* Maculæ *adhering to the Body of the Sun; as is here aſſerted.*

XXIV. If a Planet deſcribe an *Ellipſis* about its central Body in the *Focus* thereof, it will move faſteſt when it is neareſt to, and ſloweſt when 'tis fartheſt from the ſaid central Body or *Focus*; and agreeably in the intermediate Places. For ſeeing where-

whereſoever the revolving Body is, the *Area* is ſtill proportionable to the Time, as was before ſhew'd; and ſo in equal Times always equal; 'tis evident by how much the Diſtance is leſs, and the Line from the *Focus* is ſhorter, by ſo much muſt the Bodies perpendicular Motion be the ſwifter to compenſate the ſame; and, *vice verſâ*, by how much the former is longer, by ſo much muſt the latter be ſlower to allow for it.

Coroll. *Hence we may obviate that Difficulty which is ſo commonly made about the Aſcent and Deſcent of Planets or Comets in their Ellipſes; eſpecially when they are very eccentrical; and ſo may underſtand how a Planet or Comet which deſcends towards the Sun, and at laſt arrives at his Perihelion, is able ſo to overcome the Sun's Attraction again, even there where it is greateſt, as to throw it ſelf farther off, and to aſcend from it by the ſame Steps, and in the ſame Line by which it before deſcended. For ſince the natural Velocity correſponding to the Sun's Attraction every where, is only in a* ſubduplicate Proportion of the Diſtance reciprocally; *but the Velocity in any Orbit whatſoever will neceſſarily be in a full* Proportion of that Diſtance reciprocally, *as we have juſt now obſerv'd, 'tis plain that all the while any Planet or Comet is deſcending, its Velocity gains upon the Sun's attracting Power; and ſo after the Body is paſt the End of the ſhorter Axis,* (*where both are* in Æquilibrio) *and in the* Parabola *in the whole Deſcent it overcomes it, and throws it ſelf off perpetually; tho' the oblique deſcending Poſition of the Tangent does not permit it to go really farther off till it comes to its Perihelion. 'Tis alike plain that therefore all the while any Planet or Comet is aſcending, its Velocity is gain'd upon by the Sun's attracting Power, and ſo after the Body is paſt the*

Lem. 23. priùs.

other

other End of the ſhorter Axis it is overcome by it, and is attracted more and more to it perpetually; tho' the oblique aſcending Poſition of the Tangent does not permit it to approach really nearer till it comes to its Aphelion. And as to the two other Quarters of the Motion, 'tis eaſily ſtated from what has been ſaid. For the Aſcent from the Perihelion till the End of the leſſer Axis, ariſes from the ſuperabundant Velocity acquir'd in the Deſcent from the other End of the leſſer Axis juſt before; and the Deſcent from the Aphelion till the ſaid End of the leſſer Axis ariſes from the prevailing Attraction, and Velocity too little to balance it from the other End of the leſſer Axis juſt before. In ſhort, while the revolving Body is in the remote Half of the Elliptick Periphery, the Attraction is too hard for the Velocity, and while 'tis in the nearer Half, the Velocity is too hard for the Attraction; and when the Attraction in part conſpires with the Tangent or Direction of the projectile Motion, as in the Deſcent, the Velocity thence increaſes continually; and when it is partly oppoſite to the ſame, as in the Aſcent, the Velocity thence diminiſhes continually; and thence ſuch Correſpondence and mutual Superabundance and Deficience of Velocity muſt happen in the ſeveral Parts of the Orbit perpetually.

XXV. If the Planet B deſcribe an *Ellipſis* about the central Body in the *Focus* H; as the *Area* deſcrib'd by the Line BH, will be exactly uniform and proportional to the Time of Deſcription; ſo the *Angular Motion*, or Velocity of the Line from the other *Focus* BI, will be proportional to the Time, and uniform alſo; tho' not ſo Exactly and Geometrically. Fig. 6.

XXVI. The Law of Gravitation already explain'd being ſuppos'd; if one Planet deſcribe an *Ellipſis* about the central Body in the *Focus* H, and Fig. 6.

and another deſcribe a Circle about the ſame in its Center: If the Semidiameter of the Circle be equal to H E, the Middle Diſtance in the *Ellipſis* from the ſame Center or *Focus*, their periodical Times of revolving will be the ſame; and when the Diſtances are equal, their Velocity will be ſo too.

Corollary. *Tho' therefore the Planets revolve in* Ellipſes *of ſeveral Species, yet their periodical Times may be as well compar'd with one another, and with their Diſtances from the central Bodies, as if they all revolv'd in compleat Circles; as was above done: For 'tis but taking the middle Diſtance in the* Ellipſis *for the Radius of a Circle, and the ſame periodical Time, and the Computation will hold as well as if the Orbit had been a perfect Circle.*

XXVII. If a Body revolve about a central Body, as about A in a Circle, as B e E b; and another revolve about the ſame in the *Focus* of its *Ellipſis*, B H F G, ſo that the Semidiameter of the Circle were equal to the neareſt Diſtance in the *Ellipſis* A B; the Velocity of the Body at the neareſt Point of the *Ellipſis* will be greater than the Velocity of the Body in the Circle; and will be to it in half the Proportion of the *Latus rectum* of the *Ellipſis* p q, to the Diameter of the Circle e b; or as that Line p q, to a Middle proportional between it ſelf and e b.

Fig. 3.

XXVIII. If one Body revolve round a central Body in a Circle, and another about the ſame in its *Focus* deſcribe ſo very Eccentrical an *Ellipſis*, that it may paſs for a *Parabola*; the Velocity of the Body moving along the *Ellipſis*, will be to that of the Body moving in a Circle, (the Point in the *Ellipſis* being as far from the central Body as the Circumference of the Circle) as the Square Root of two to an unit, that is very nearly as ten to ſeven.

XXIX.

XXIX. If a central Body have many Bodies revolving about it; 'tis perfectly indifferent in it self, and with regard to that central Body, in what Planes soever, or which way in those Planes soever, they all or any of them move; supposing that all the Planes pass through the Center of that Body about which they revolve.

Corollary. *Hence arises a convincing Argument of the Interposition of Council and Providence in the Constitution of our System; in which all the Planets revolve the same way, from* West *to* East; *and that in Planes almost coincident with one another, and with that of the* Ecliptick, *as Dr.* Bentley *hath also observ'd.* Serm. 8. p. 13.

XXX. The Order of the Heavenly Bodies in the Solar System is as follows: *First* of all, The vast glorious Body of the Sun is plac'd in the Middle, very near the Center of Gravity of the entire System, in the common *Focus* of every one of the Planetary Orbits. Next to him *Mercury* describes his *Ellipsis*, and that so near, that we on Earth rarely obtain a distinct View of him. Next to *Mercury* is the *Elliptick* Orbit of *Venus*, our glorious Morning and Evening Star. Next to *Venus* our Earth, with its Attendant the Moon, perform a joint Course, and measure out the Annual Period. Next to the *Earth* the fiery Star *Mars* alone, without any visible Guard accompanying him, revolves about the same Center. Next to *Mars*, tho' at a mighty Distance from him, the largest of the Planets, *Jupiter*; with his four remarkable Satellits; and lastly, *Saturn* with his five little *Moons* about him, describe the farthest and most remote Orbits, and compleat the entire Planetary *Chorus*, as the Frontispiece of the Book represents them to the Contemplation of the *Reader*.

Scholium

Scholium 1. Beſides the Planets, whoſe Orbits are not very different from Circles, there are another Species of Bodies revolving about the *Sun* in ſuch *Ellipſes*, as may paſs for *Parabola's*, they are ſo exceeding Eccentrical; but as far as appears, as regularly retaining their ſeveral Periods and Orbits, as the Planets now mention'd. But becauſe theſe Bodies will be more diſtinctly conſider'd hereafter, I ſhall wave their farther Conſideration at preſent, and proceed.

Scholium 2. But as to the fix'd Stars, which are not repreſented in the Figure, they are ſtill ſo vaſtly more remote from the Sun, that, tiill very lately, they were thought ſubject to no *Parallax* at all, even not to that of the annual Orbit it ſelf. The Great *Hugenius* by a new, and not improbable Method of *conjecturing* their Diſtance, in his *Coſmotheorus*, p. 137. computes that the neareſt of them can't well be at a leſs Diſtance from the Sun, or from us, than 27664 Semidiameters of the *Magnus Orbis*; each of which Semidiameters contains by the beſt Obſervations no leſs than 81 Millions of *Engliſh* Statute Miles, as we ſhall ſee preſently: So that by this Computation, the neareſt of the fix'd Stars muſt be about 2240784 Millions of Miles from us. And tho' ſince the Noble Diſcovery of the Annual Parallax of the fix'd Stars by Mr. *Flamſtead*, agreeing with the ſame before made by Dr. *Hook*, the Diſtance of thoſe Stars which have been meaſur'd is not quite ſo vaſt and enormous, yet is it ſtill in it ſelf exceeding great, no leſs than 8000 Semidiameters of the *Magnus Orbis*, or about 648000 Millions of *Engliſh* Miles. And what is in theſe Obſervations moſt remarkable and ſurprizing is this, that thoſe three Stars, of very different apparent Magnitude, and very different Places, whoſe Diſtances have been thus accurate-

ly

ly meaſured, do not appear to be of very different Diſtances, but almoſt all pretty equally remote from us; contrary to the general Opinion hitherto; which has ſuppos'd the fix'd Stars at all manner of various Diſtances from us, and thoſe which appear'd the ſmalleſt to have therefore been at the moſt remote, and the largeſt at the neareſt Places. If on farther Obſervations this prove to be the Caſe of the reſt of the fix'd Stars, we muſt be forc'd to alter our Opinion, and to believe that they are all pretty nearly in a ſpherical Surface from us, and that our Sun, with its Syſtem is, as it were, plac'd in the Center of the reſt of the Syſtems, and of the viſible World. For as to the Learned Dr. *Gregory*'s Objections againſt the Force of Mr. *Flamſteed*'s Reaſoning for the Annual Parallax of the fixed Stars, and the Annual Motion of the Earth conſequent thereupon, they are too inconſiderable, and too much built on Miſtakes to be at all regarded in this Matter, as I have ſhew'd in another place. But then as to the Nature of the fix'd Stars, 'tis in all Probability the ſame with the Sun's; and ſo each of them may have their reſpective Syſtems of Planets and Comets as well as he has. Which things, conſidering that the Number of them is continually found to be greater, according as the Teleſcopes we uſe are longer and more perfect, do vaſtly aggrandize the Idea of the Viſible Univerſe; and ought proportionably to raiſe our Admiration of the Great Author of the whole to the higheſt Degree imaginable.

Aſtronom. p. 275, 276.

Philoſ. Mathemat. Coroll. 5. *Prop.* XLII.

XXXI. The periodical Times of each Planet's Sydereal Revolution about the *Sun*, are as follow.

		D	H	′
Mercury	revolves about the *Sun* in the Space of	87	23	16
Venus		224	16	49
The Earth		365	6	09
Mars		686	23	27
Jupiter		4332	12	20
Saturn		10759	6	36

XXXII. The middle Distances of the Planets from the *Sun* are as follow.

Mercury	is distant from the Sun about	32,000,000	Statute Miles; each 5280 *English* and 4943 *Gallick* Feet.
Venus		59,000,000	
The Earth		81,000,000	
Mars		123,000,000	
Jupiter		424,000,000	
Saturn		777,000,000	

Scholium. The Proportions of these Numbers are unquestionable: But the Numbers themselves only within a certain Latitude under or over. The Reason of such Uncertainty is, That the Sun's *Parallax*, or Angle, which the Semidiameter of the Earth would subtend to an Eye at the Sun, on which the whole depends, is not yet accurately determin'd by Astronomers; so that no exact Number can be certainly pitch'd upon, till farther Observations put an end to our Doubts. On which Account I have put in this Caution to prevent Mistakes, and in my Computation have followed, our most exact Observer Mr. *Flamsteed*, as Sir *Isaac Newton* also does in his latest Writing of this Nature, I mean his Theory of the Moon publish'd by Dr. *Gregory*, and have suppos'd the Sun's *Parallax* 10 Seconds, and from this *Hypothesis* made these and the following Calculations; which therefore cannot be very far

Astron. P. 336.

far from Truth, and are certainly from the beſt Obſervations which have yet been made, and ſo the exacteſt Numbers that can at preſent be ſet down.

XXXIII. The Periodical Times of the *Circumjovials* Revolutions about *Jupiter* are as follows.

		D	H	′	″
The Innermoſt	revolves about *Jupiter* in the Space of	1	18	28	36
The Second		3	13	13	52
The Third		7	3	43	00
The Fourth		16	16	32	00

Of the *Circumſaturnals.*

		D	H	′	″
The Innermoſt	revolves about *Saturn* in the Space of	1	21	18	26½
The Second		2	17	41	10½
The Third		4	12	25	10
The Fourth		15	22	41	28
The Fifth		79	7	46	00

XXXIV. The Diſtances of the *Circumjovials* from *Jupiter* are as follow.

The Innermoſt	is diſtant from *Jupiter*	1 5/6	Diameters of *Jupiter.*
The Second		4 ½	
The Third		7 ½	
The Fourth		12 ⅔	

Of the *Circumſaturnals.*

The Innermoſt	is diſtant from *Jupiter.*	0 39/40	Diameters of his *Annulus.*
The Second		1 ¼	
The Third		1 ¾	
The Fourth		4 0	
The Fifth		12 0	

XXXV. The Time of the Diurnal Revolutions of ſuch of the Heavenly Bodies as are already known to turn about their own *Axes* is as follows.

		D	H	′
The Sun	revolves a-	25	6	00
The Earth	bout its	00	23	56
Mars	own *Axis*	01	0	40
Jupiter	in the	00	9	56
The Moon	Space of	27	7	43

XXXVI. The Quantity of Matter in ſuch of the Heavenly Bodies as afford us means of determining the ſame, is, according to the forementiond Obſervations, in the Proportions following.

The Sun's	227500
Jupiter's	220
Saturn's	94
The Earth's	1
The Moon's between	$\frac{1}{3}$, & $\frac{1}{4}$

Corollary. *The Weight of Bodies at equal Diſtances from the Sun and Planets, being in the ſame Proportion with the Quantity of their Matter, as has been already ſaid; the ſame Numbers aſſign'd in the laſt* Lemma, *which explain the latter, ſerve equally to explain the former alſo.*

Lem. 7. prius.

XXXVII. The Diameters of the *Sun* and *Planets.*

The Sun's	763000	Statute Miles.
Saturn's	61000	
Jupiter's	81000	
Mars's	4440	
The Earth's	7970	
The Moon's	2170	
Venus's	7900	
Mercury's	4240	

Huge-

Hugenius's Numbers are, to the Sun's Diameter the Diameter of

Saturn's Ring as	11	*to*	37
Saturn as	5	*to*	37
Jupiter as	2	*to*	11
Mars as	1	*to*	166
Earth as	1	*to*	111
Venus as	1	*to*	84
Mercury as	1	*to*	290

Cosmotheor. *p.* 14, 15.

XXXVIII. The Weight of Bodies on the Surface of the *Sun*, and those *Planets* mention'd in the 36th *Lemma* before is as follows. On the Surface of

The Sun	24 L40
The Earth	1 L00
Jupiter	2 00
The Moon	0 L34
Saturn	1 L28

XXXIX. The Densities of the same, (whatever be the *Sun's Parallax*) are as the Numbers following.

The Moon's	123 $\frac{1}{2}$
The Earth's	100
The Sun's	025 $\frac{1}{2}$
Jupiter's	019
Saturn's	15L0

XL. As the Weight of Bodies without the Superficies of the Heavenly Bodies increases in a duplicate Proportion of their Nearness to their Centers; so within the same Superficies, if their Density to the Center be uniform, does it decrease in

a ſimple Proportion thereof; and is conſequently greateſt upon the Superficies themſelves. Thus, as we have already ſeen, a Body at 10000 Miles Diſtance from the Earth's Center, is four times ſo heavy as it would be at 20000. But within the Earth, if a Body were twice as near its Center as 'tis on the Surface, it would be but half ſo heavy as 'tis here; if thrice as near, it would be but a third part ſo heavy; if four times as near, it would be but a quarter ſo heavy; and ſo for ever proportionably. Gravity therefore is moſt conſiderable on the Surface, decreaſing both ways, upward in a duplicate Proportion of the *reciprocal* Diſtance; and downward in a ſimple *direct* Proportion thereof.

Lem. 9. prius.

XLI. If the central Regions of a Globe contain a ſpherical Cavity within the ſame; Bodies plac'd therein, from the Equality of Attraction on every Side, will not tend any way, or gravitate at all, but be as perfectly at Liberty, as if they were not affected by any ſuch Power of Attraction or Gravitation.

XLII. The *Moon* revolves about the Earth from *Weſt* to *Eaſt* in 27 Days, 7 Hours, 43 Minutes; and in the very ſame Space of Time, by a ſtrange Correſpondence and Harmony of the two Motions, revolves the ſame way about its own *Axis*; whereby, (one Motion as much converting it to, as the other turns it from the Earth) the ſame Side is always expos'd to our Sight.

XLIII. The Librations of the *Moon's* Body, which cauſe that 'tis not exactly the ſame Hemiſphere thereof which is perpetually expos'd to our Sight, ariſe from the Eccentricity of the *Moon's* Orbit, from the Perturbations by the *Sun's* Attraction, and from the Obliquity of the *Axis* of her Diurnal Rotation to the *Moon's* own Orbit,

without

without the Knowledge of which Circumſtances her *Phænomena* were inexplicable, but by the Conſideration of them are eaſily demonſtrable.

XLIV. In the 2365th Year of the *Julian* Period, or the 2349th before the Chriſtian *Æra*, the Autumnal Equinox was on the 12th Day of *October*. 'Tis evident from the Aſtronomical Tables of the Anticipation of the Equinox, that in 4068 Years (the Time ſince the before-mention'd Year till *A. D.* 1720.) the Equinoxes have anticipated about 31 Days. 'Tis alſo evident, That at this time the Vernal Equinox is on the 9th of *March*, and the Autumnal on the 12th of *September*. 'Tis farther evident, that whereas now the Space from the Vernal to the Autumnal Equinox is eight or nine Days longer than from the Autumnal to the Vernal, by reaſon of the Poſition of the *Perihelion* of the Earth's Orbit near the *Winter* Solſtice; at the time before-mention'd it was not above five or ſix Days ſo. By the Anticipation therefore of the Equinoxes alone, if the Poſition of the *Perihelion* had been always the ſame, the Equinoxes at the time aſſigned had been on the 9th of *April*, and on the 13th of *October*; and, the equaller Diviſion of the Year allow'd for, the Vernal Equinox was on the 10th of *April*, and the Autumnal on the 12th of *October*, as was to be prov'd.

Coroll. *Since 577 Years ſtill more backward, the Equinox muſt have been full four Days later, in the 1788th Year of the* Julian *Period, which is the 2926th Year before the Chriſtian* Æra, *the Autumnal Equinox muſt have been on the 16th Day of* October.

XLV. Comets are a *Species* of Planets, or Bodies revolving about the Sun, and moving in one of the Conick Sections, (which in all Probability is an *Ellipſis*,) whoſe Motions, and, if they have *Elliptical* Orbits, whoſe periodical Times are as con-

ſtant, certain, and regular as thoſe of the Planets, tho'till very lately generally unknown to the World.

XLVI. Theſe *Elliptical* Orbits of Comets, if they be ſuch, are ſo very Oblong and Eccentrical, that while they come within our Obſervation, they are but little different from *Parabola*'s, and may accordingly be conſider'd as ſuch.

XLVII. The Planes in which various Comets move, are themſelves exceeding various, and at all imaginable Angles of Inclination with one another, and with that of the Ecliptick; they all ſtill paſſing through the Center of the Sun.

XLVIII. The Courſe of Comets in their Orbits is not determin'd one way, (as is that of the Planets from *Weſt* to *Eaſt*;) but indifferently ſome of them move one way, and ſome another.

Corollary 1. *From theſe two laſt* Lemmata *'tis evident that Comets move ſometimes from* Eaſt *to* Weſt, *other times from* Weſt *to* Eaſt; *ſometimes from* North *to* South, *other times from* South *to* North; *or obliquely between any of theſe ways, according as the Situation of the Planes of their Orbits, and the Directions of their Courſes together determine them.*

Coroll. 2. *Hence 'tis certain, That the heavenly Motions are not perform'd in corporeal* Vortices; *ſeeing the Comets exactly obſerve the ſame Laws and Velocity of Motion, whether they revolve with, or againſt, or croſs to the Planets, and the ſuppos'd fluid Matter of the* Vortices.

XLIX. Comets in their Deſcent to, and Aſcent from the *Sun*, paſs quite through the Planetary Syſtem; as may be ſeen in the Frontiſpiece.

Corollary. *Hence we may obſerve a new poſſible Cauſe of vaſt Changes in the Planetary World, by the Acceſs and Approach of theſe vaſt, and hitherto little known Bodies to any of the Planets.*

L. If

L. If a Comet in its Deſcent to, or Aſcent from the *Sun*, approach near to a Planet as it paſſes by, and its Plane be different from that in which the Planet moves; by its attractive Power it will, agreeably to the univerſal Law of Gravitation of Bodies, draw it from the Plane in which it before mov'd, and ſo cauſe it afterward to move in a new one, inclin'd to the former, but paſſing thro' the *Sun*, as the former did.

Corollary. *Hence 'tis ſuppoſable, that tho' the Planets originally revolv'd in the ſame common Plane, yet by the ſubſequent Attraction of Comets, their Planes may now be inclin'd to one another, and different; as 'tis certain* de facto *they now are.*

Scholium. Seeing the Law of Gravitation is univerſal and mutual, 'tis evident the Planet would draw the Comet from its Plane, as well as the Comet would draw the Planet; and ſo generally, what Effects ſoever the Comets could have on the Planets, the latter would have correſpondent ones on the former. But as this Indication once given for all, there is no Neceſſity of taking notice of the Changes in the Comets; ſo accordingly, in what follows, I ſhall wholly omit the ſame; and confine my ſelf to ſuch Things as will be immediately uſeful in the following Theory.

LI. If a Comet revolving in the ſame Plane with a Planet, whoſe Orbit is a perfect Circle, as it paſſes by, approach near it, by accelerating or retarding the Velocity of the Planet, it will render its Orbit *Elliptical.* Thus if B were a Planet revolving about the *Sun* at the Center A, in the circular Orbit B e E b; and a Comet either in its Deſcent towards, or Aſcent from the *Sun* ſhould paſs near it, it would, agreeably to the univerſal Law of Gravitation of Bodies, *accelerate* it, if its Attraction concurr'd with, or *retard* it, if its Attraction Fig. 3.

traction contradicted the Planets own annual Motion along the Periphery of its Circle. Whereupon the concentrical Orbit would become eccentrical, and the Planet would afterwards revolve in an *Ellipsis*; which on an *Acceleration* would be bigger, and on a *Retardation* less than the Circle which it had till then describ'd; the former represented by BHFG, the latter by BKLI. For when the original Velocity of B was exactly adjusted to the *Sun*'s Power of Attraction, and its Orbit thereupon a perfect Circle, this new Acceleration or Retardation must render it afterward incommensurate, and too great, or too little for the same; and accordingly the Orbit to be afterward, agreeably to what has been formerly explain'd, described by the Planet, must be an *Ellipsis*; and bigger or less than the former Circle, as the Force was directed for, or against, the Planets own Motion.

Lem. 11, 12, 13. prius.

Corollary 1. *In this Case, the* Sun *would no longer be in the Center of the Figure, but in one of the* Foci, viz. *in the nearer* Focus *of the larger, and the farther of the smaller* Ellipsis.

Coroll. 2. *If* B *were the Earth moving circularly about the* Sun *from* West *to* East, i. e. *from* B *by* e E b *to* B *again; and a Comet* h *in its Descent towards the* Sun *should pass by before it, or on the* East-*side; the annual Motion of the Earth would be accelerated, and its circular Orbit degenerate into the larger* Ellipsis, BHFG, *about the* Sun *in its nearer* Focus A.

LII. If a Comet in passing by as before, accelerate the Planet's Motion, and so enlarge the Orbit, the Planet's periodical Time of revolving will be enlarg'd, and become longer thereby. In like manner, if the Comet retard the Planet's Motion, and so diminish the Orbit, the periodical Time of revolving will be lessen'd, and become shorter. And still the more considerable the Acceleration or Retarda-

tardation is, compar'd with the original Velocity of the Planet, the greater will be the Eccentricity, and the greater Difference between the former and latter Orbits, and the former and latter periodical Times of revolving alſo.

Corollary 1. *If in the foregoing Caſe the Semidiameter of the ancient Circle, with the middle Diſtance in the* Ellipſis *afterward deſcrib'd be given, as alſo the periodical Time of revolving in the latter, the periodical Time of revolving in the former is at the ſame time determin'd. For as the* Cube *of the middle* Diſtance *in the* Ellipſis, *to the* Cube *of the* Semidiameter *of the* Circle, *ſo is the* Square *of the* Periodical Time *in the* Ellipſis, *to the* Square *of the* Periodical Time *in the* Circle. *So that three of thoſe Terms being known, which is here ſuppos'd; the fourth, by the* Golden Rule, *is known alſo; whoſe* Square Root *anſwers the Demand of this* Corollary.

Coroll. 2. *Since therefore the three* Poſtulata *now mention'd are given in the Caſe of the Earth (ſuppoſing that it anciently revolv'd in a circular Orbit) as will hereafter appear; the Time of its annual Revolution in that original and circular Orbit may eaſily be at this Day diſcover'd.*

LIII. If a Planet moving in a circular Orbit, were accelerated by an Attraction directly along its Tangent or Periphery; the preceding Angle made by the Tangent and Radius CBA, would ſtill remain a right one, and the Point B, where the Acceleration happen'd, would afterward be the neareſt to the *Focus*, or the *Perihelion* in the *Ellipſis* afterward to be deſcrib'd. So if it were alike directly retarded along its Tangent or Periphery, the Angle would ſtill be a right one; and the Point B where the Retardation happen'd, would be the fartheſt from the *Focus*, or the *Aphelion* in the *Ellipſis* to be afterward deſcrib'd. Fig. 3.

LIV.

LIV. If therefore ſuch Acceleration or Retardation were caus'd by a Body moving uniformly along its Trajectory on each ſide of the Planets circular Periphery, the oblique Acceleration above, would take off the nearly equal oblique Retardation below, or the contrary; and thereby the Effect afterward remaining, would be all one, as if the prevailing Force, whether of Acceleration or Retardation, were only along the Tangent or Periphery; all one, as if the whole Attraction were caus'd while the attracting Body was at or near that Tangent or Periphery it ſelf; and by conſequence the Point B would be, as above, the *Perihelion* or *Aphelion* of the *Ellipſis* afterward deſcrib'd.

Scholium. Altho' ſome ſmall Inequality would ariſe by a Comet's moving ſlower above than below the Periphery of a Planet's Orbit, and ſo attracting longer above than below *on the one ſide*; and by the Comet's attracting only downward when juſt paſſing by, and at the neareſt Poſition *on the other ſide*; yet becauſe, as appears on Computation, this Matter is generally not conſiderable, unleſs the Comet be vaſtly great, or approach vaſtly near, it may be wholly wav'd, and the Point B ſtill ſuppos'd either juſt at, or very near to the *Perihelion* or *Aphelion* of the *Ellipſis* afterward deſcrib'd.

Coroll. *If therefore in a given Year, a Comet, in its Deſcent towards the Sun, accelerated the Earth's Annual Motion, and chang'd its Orbit from a Circle to an* Ellipſis; *the Degree of the Ecliptick, and Day of the Year, when the ſame Attraction happen'd, may be pretty nearly determin'd by the Place of the* Perihelion *at the ſame Time, from the Aſtronomical Tables of its Place and Motion.*

LV. If the neareſt Diſtance of a Comet to a Planet be given, the Time of Attraction to be conſider'd is from thence determinable. Thus if a Comet in its Deſcent towards the Sun, as from E

Fig. 5.

to

to H, paſs'd by a Planet moving in the Circumference of its circular Orbit from A to D, and ſo accelerated the ſame: Let C G be the Line deſcrib'd by the Comet while the Planet paſſes along from B to C, at which laſt Point C the Comet is ſuppos'd to have been at its neareſt Diſtance, when the Planet is at B; and let C F be equal to C G. In this Caſe, the Acceleration by the Comet between E and F, being nearly taken off by the Retardation between G and H; (and the like is to be ſuppos'd of the Acceleration beyond E, and the Retardation beyond H, not to be contain'd in the Figure) 'tis evident that all the Attraction which is to be conſider'd, is that Accelerating the Planet while the Comet paſſes from F to G, and the Planet from Q to C: As the ſole View and Conſideration of the Figure it ſelf will give ſufficient Evidence. Which from the Velocity of the Motion of Comets and Planets, eaſily calculated, might be ſoon determin'd; if the neareſt Diſtance C B were once aſcertain'd.

Coroll. 1. *If therefore the neareſt Diſtance* C B *were known, and the Bigneſs or Quantity of Matter in the Comet it ſelf; ſeeing the Time of Acceleration is withal known; the Quantity of Acceleration, the increas'd Velocity of the Planet; and by conſequence the Magnitude of the* Elliptick *Orbit to be afterwards deſcrib'd; and the periodical Time of revolving anſwerably thereto, might all be* à priori *determin'd.*

Coroll. 2. Vice verſâ, *If the neareſt Diſtance* BC, *with the Eccentricity of the ſubſequent* Elliptick *Orbit, or its periodical Time be given; the Bigneſs of the Comet may, on the ſame Grounds, be determin'd alſo.*

LVI. If a Comet deſcending towards the Sun paſs'd near a Planet which had a ſecondary one revolving about it; unleſs their Situation were ſo accurately and nicely adjuſted, that it approach'd equally

equally near to them both, theſe two Planets would no longer revolve together, but being for ever ſeparated, muſt deſcribe different Orbits about the Sun. This is eaſily demonſtrable; ſince any Diverſity of Attraction muſt change each of their annual Orbits, and periodical Times, in proportionably different Degrees. The leaſt of which were more than ſufficient to ſuch a Purpoſe as we here are ſpeaking of.

Coroll. *If therefore the Planetary Orbits were all or any of them originally Circles; and by Attraction of Comets paſſing by, were chang'd into* Ellipſes; *The Poſition of their ſeveral Satellits, which they ſtill retain, muſt have been moſt wiſely and wonderfully adjuſted, by the Divine Providence, with their Fellows; with their primary Planets; and with the Orbits and Periods of the Comets; without which Correſpondence, the preſent Syſtem of the World muſt have been vaſtly alter'd; and the primary Planets have loſt their Attendants for ever.*

LVII. Seeing therefore the Earth ſtill retains its ſecondary Planet the Moon, which at its original Formation belong'd to it; if its preſent *Elliptick* Orbit be the Effect of the paſſing by of a Comet, the Time of ſuch paſſing muſt have been about three Days after the New or Full Moon. Let *o g* repreſent a Section of the Ecliptick Periphery; in which the Earth *a* is performing its annual Courſe, from *Weſt* to *Eaſt*, or from *o* towards *g*; Let *c* be the Moon, performing in like manner, (beſides her menſtrual Revolution the ſame way, from *t* by *c* towards *s*, about the Earth) her annual Courſe, with the ſame Velocity as the Earth, from *u* towards *w*, along her Periphery *u w*, equidiſtant from the Ecliptick *o g*: Let *n m* repreſent the Trajectory of the Comet interſecting the Line paſſing thro' the Sun I *i*, in the Angle

Fig. 2.

m b i

mbi of 12, 14, or 16 Degrees more or leſs: Let *b* be the Comet deſcending from *n* towards *m* in its Approach toward its *Perihelion*: From the Earth's Center, from *d* and *x*, (the Line *ax* being drawn parallel to the Comet's Trajectory *nm*,) let fall Perpendiculars to the Trajectory *af*, *de*, *xy*. Now if while the Comet were paſſing from *f* to *y*, the Moon ſtood ſtill, and did not proceed in her annual Courſe along her Periphery *uw*, ſhe muſt have been at that Point *x*, that is, not above one Day paſt the New at *t*; and ſo the neareſt Diſtances *af*, *xy* being equal, the Attractions of the Earth by the Comet at *f*, and of the Moon by the Comet at *y*, would have been equal alſo; and by conſequence, this Poſition would have ſecur'd the future Agreement and Company of theſe two Planets, and the Time of the paſſing by of the Comet fix'd to a *ſingle Day after the New Moon*. But by reaſon of the Moon's progreſſive annual Motion along her Periphery *uw*, while the Comet deſcends from *f* towards *y*; ſhe muſt have been in that Point of her menſtrual Orbit *c*, where *cd* is to *cq* or *da*, as her Velocity to the Comets, or as 7 to 10; that ſo the Comet deſcending from its neareſt Diſtance to the Earth at *f*, to its neareſt Diſtance to the Moon at *e*; and the Moon arriving, at the ſame Time, by her annual Motion, at the Point *d*, the neareſt Diſtances *af*, *de* may ſtill be equal; and the Acceleration of the Earth and the Moon may ſtill be the ſame. Now this being the Caſe; the Place of the Moon *c* muſt be about 43 Degrees more or leſs paſt the Point *t*, in its menſtrual Orbit, or the Conjunction with the Sun; that is, about three Days paſt the New Moon. And the like will be demonſtrated of three Days paſt the Full Moon, by the ſame Figure and Reaſoning; if we do but ſhift the Scene, and let *c* repreſent the

the Earth, and *uw* the Ecliptick Periphery; *a* the Moon, and *og* its Periphery. For all the reſt remaining as above; the Angle *ſca* which the Moon *a* muſt have paſs'd after the Full at ζ, being equal to the alternate *cat*, would require equal Time to be deſcrib'd; and ſo the Time proper for the Situation of the Earth and Moon, (which is equally neceſſary in this as in the former Caſe) as the Figure repreſents it, will be about three Days after the Full; as this Corollary aſſerts.

Coroll. *If therefore in a given Year a Comet, in its Deſcent towards the Sun, accelerated the Earth's and Moon's annual Motions, and thereby chang'd their Orbit from a Circle to an* Ellipſis; *when the* Day *of the Year, from the Place of the* Perihelion, *were* pretty nearly *determin'd; by this laſt* Lemma, *the* very Day *is determin'd alſo from the Aſtronomical Tables of the Conjunction of the Sun and Moon.*

LVIII. If our Earth once revolv'd about the Sun in a circular Orbit, whoſe Semidiameter were equal to the Earth's original Diſtance from the Sun at its *Perihelion*, the annual Period was very nearly equal to 12 Synodical or 13 Periodical Months. 'Tis evident, that 12 *Synodical* or 13 *Periodical* Months, (equal to each other in the preſent Caſe,) are 355 Days, 4 Hours, 20½ Minutes. 'Tis alſo evident, that the Eccentricity of the Earth's Orbit, or the Diſtance between the *Focus* and Center of its *Ellipſis*, was, according to the ancient Aſtronomers, *Hipparchus* and *Ptolemy*, $\frac{31}{1000}$ of the entire middle Diſtance. By the Moderns 'tis found ſomewhat leſs, (and thoſe who know Sir *Iſaac Newton*'s Philoſophy, will eaſily allow of ſome Diverſity in different Ages;) by *Tycho* 'twas determin'd to be near $\frac{18}{1000}$; by *Caſſini* ſince $\frac{17}{1000}$; and laſt of all by our moſt accurate Ob-

ſerver Mr. *Flamſteed*, (as he was pleas'd by Letter with great Freedom to aſſure me,) $\frac{1692}{100000}$, or near $\frac{17}{1000}$, as *Caſſini* had before determin'd. All which conſider'd, we may very juſtly take a kind of middle between the Ancient and the Modern Eccentricity for the true original one; that is, about $\frac{185}{10000}$ or more nicely $\frac{184\frac{3}{4}}{10000}$ that is, $\frac{18475}{1000000}$ for the Difference between the ancient Semidiameter of the circular Orbit, and the middle Diſtance in the preſent *Elliptick* one; then by the Golden Rule, as the Cube of 1000000, (the middle Diſtance in the *Ellipſis*) to the Cube of 981525, (the Semidiameter of the ancient Circle;) ſo is the Square of 525969, (the Number of Minutes in our preſent Sidereal Solar Year,) to the Square of the Number of Minutes in the ancient Sidereal Solar Year, whoſe Root being 511460½ Minutes, or 355 Days, 4 Hours, 20½ Minutes, appears to be exactly and ſurprizingly equal to the Lunar Year before-mention'd.

Coroll. *Upon this* Hypotheſis *the Ancient Solar and Lunar Year were exactly commenſurate and equal; and* 10 *Days,* 1 *Hour,* 28½ *Minutes, ſhorter than the preſent Solar Year. Which laſt Number, tho' it be not equal to the Lunar* Epact *at preſent, is yet rightly aſſign'd; each Synodical Month being (by the quicker Angular Revolution of the Earth then) ſo much longer, as upon the whole adjuſted, the Periods as is above ſtated: Which on Calculation will eaſily appear.*

LIX. If a Planet which has a diurnal Revolution on its own Axis, have a new Addition of Matter laid upon its Surface, which no way partakes of that Motion before, its Diurnal Motion will be retarded in a Seſquialteral Proportion of the Quantity that additional Matter bears to the

entire Quantity of Matter in the Planet. For if this additional Quantity of Matter were equally ſpread over the inward Parts of the Planet, it would then only increaſe it uniformly in Denſity, and ſo retard its Motion in the exact Proportion of its Quantity of Matter, compar'd with the former Quantity in the Planet. And this would alſo be the Caſe, if inſtead of an equal Diſperſion of the Matter, that of each Circle parallel to the Planet's Equator, of which the Planet may be conceiv'd to be compos'd, were plac'd at that Diſtance from its *Axis* which the Center of Oſcillation or Percuſſion of each revolving Radius obtains in it; that is, at two thirds of each Radius's Diſtance from its *Axis*, or Center of Motion. But becauſe the additional Matter is ſuppos'd to be plac'd on the Surface of the Sphere, and ſo at the Circumference of every Circle, its Velocity is ſeſquialteral to that it would have had at the Center of Oſcillation or Percuſſion, and ſo its retarding Power will be increas'd in the ſame ſeſquialteral Proportion. *Q.E.D.*

Coroll. *If therefore the Quantity of additional Matter be known, the Quantity of Retardation is known alſo, and* vice versâ.

LX. As Comets agree with Planets in a regular Motion about the Sun, the common Center or *Focus* of our Syſtem, ſo do they as to their Bulk and Magnitude; being, generally ſpeaking, about the Bigneſs of Planets, as the Obſervations of Aſtronomers demonſtrate.

LXI. Beſides the Bodies of the Comets themſelves, which are ſolid, compact, and durable; there is round about the Generality of them a vaſtly large, thin, pellucid Fluid; containing withal great Quantities of Opake or Earthy Particles, moſt of them in probability towards the Central Solid, while the lighteſt and rareſt, as

Vapours,

Vapours, are moſt of them towards the Circumference or Parts remoteſt from the Central Solid, yet conſtituting together a very confuſed, irregular, unequally diſpos'd, and uncertainly agitated Maſs of Bodies; whoſe Diameter is generally 10, if not 15 times as long as that of the Body it ſelf; and this Maſs is call'd the *Atmoſphere* thereof.

LXII. By reaſon of the mutual Acceſs, and Receſs of the Comets to, and from the Sun, their Atmoſpheres are uncapable of attaining, or at leaſt of long retaining any regular and orderly Situation and Diſpoſition of Parts, according to the Law of Specifick Gravity. In ſhort, while they are mov'd in ſo exceeding Eccentrical Orbits, they cannot acquire, or at leaſt not long preſerve, ſuch a permanent Conſtitution as the Planets have, and as the Conſervation of Plants and Animals do neceſſarily require, and are therefore to be look'd upon, in their preſent State, as uninhabitable, unleſs for a State of Puniſhment for their Inhabitants.

LXIII. But in caſe the Orbit of a Comet were chang'd into that of a Planet, *i. e.* if its Eccentrical *Ellipſis* were turn'd into a Concentrical Circle; or an *Ellipſis* not much differing therefrom; at a ſuitable and convenient Diſtance from the Sun; there is no Reaſon to doubt but the Parts of that confuſed Atmoſphere which now encompaſs it to ſuch a prodigious Diſtance, might ſubſide and ſettle downwards according to their ſeveral Specifick Gravities; and both obtain and preſerve as ſettled, fix'd, and orderly a Conſtitution as a Planet has: Which Conſtitution, if the Atmoſphere of a Comet were as well prediſpos'd for the ſame as the original *Chaos* of a Planet, would produce a Planet as fit for the Growth of Vegetables and the Habitation of Animals as that on which we live, or any other in the Solar Syſtem.

LXIV. Beſides the Central Solid, or Body of the Comet, and its vaſt Atmoſphere encompaſſing it, there is alſo generally a long lucid Train, which in the Approach to the Sun is by it acquir'd; and appears to be nothing elſe but the lighteſt and rareſt Parts of its Atmoſphere rarified by the Sun's Heat; which becoming thereby, if not ſpecifically lighter than the *Æther*, or Atmoſphere encompaſſing the Sun, yet at leaſt ſo rare and light as to yield to the Sun's Rays, and to be carry'd away by them, and ſo to riſe in a Miſt or Steam of Vapours towards the Parts oppoſite to the Sun; and this is call'd the *Tail* of it.

LXV. This immenſe Cylindrical Column of rarify'd Vapour, tho' its Craſſitude or Diameter be uſually more than 100000 Miles, is ſo very much expanded, and in ſo exceeding rare a Condition, that the fix'd Stars may be diſcern'd quite through the ſame, as they may alſo through the thinneſt and remoteſt Regions of the Atmoſphere.

LXVI. This ſo rare, fine, expanded Vapour moves regularly with, and accompanies the Comet it ſelf in its entire Courſe, any way whatſoever; even through the Syſtem of the Planets, and that without any Diſturbance.

Coroll. *The vaſt Spaces between, and beyond the Planets, are not full of ſubtle or Ethereal Matter; but are either perfectly, or at leaſt ſenſibly a real* Vacuum *or void.*

LXVII. The *Phænomena* of Comets Motions ſuppoſe and depend on the annual Motion of the Earth, without which they are inſoluble. Thus they ſometimes ſeem to move with greater, ſometimes with leſſer Velocity, than the Rules of their own, or indeed any other regular Motion require or permit: Nay, ſometimes they appear to us Stationary and Retrograde: All which, as in the

Planets

Planets, will naturally ariſe from the Motion of the Earth, and of the Spectators Eye therewith, and is thence exactly deducible; but without that *Hypotheſis*, cannot be accounted for. Thus alſo towards the End of their Appearances, they ſeem to deflect from that great Circle in which they before were ſeen to move; the Motion of the Earth then being more conſiderable, compar'd with that of the Comets; and ſo cauſing a more ſenſible *Parallax*, or Diverſity of Appearance than before, while their own Motion was ſo much ſwifter: and the ſame is obſervable in the other *Phænomena*.

Corollary. *Hence ariſes a convincing Argument for the annual Motion of the Earth: Which, as 'twas known to be neceſſary to account for the* Phænomena *of Planets before; ſo now appears no leſs ſo in relation to thoſe of the Comets. All the Heavenly Motions at laſt atteſting the Truth, and eſtabliſhing the Certainty of the ſame.*

LXVIII. Tho' ſome Comets never come very near the Sun, even in their *Perihelia*, nay not quite ſo near as the Earth it ſelf; yet others of 'em approach in their *Perihelia* ſo very near to the Sun, that they muſt be prodigiouſly heated and ſcorch'd thereby; and this to ſuch a degree that they may not be entirely cool'd in very many thouſands of Years. Thus the laſt famous Comet 1680, 1681, at its *Perihelion* on the 8th of *December* 1680, ſuſtain'd a Degree of Heat 28000 times as great as that we feel with us in Summer; or about 2000 times as intenſe as is that of a red hot Iron. So that, by Sir *Iſaac Newton*'s Calculation, if that Comet were as big as our Earth; as denſe and ſolid as Iron; and were throughout equally heated to the foremention'd Degree, 'twould ſcarce in our Air be fully cool'd in 50000 Years. And by conſequence in the vaſtly rarer Atmoſphere of the Sun, in which the

Philoſ. Nat. Princip. Math. p. 499.

the Heavenly Bodies revolve, not under a vaſtly longer time.

Corollary 1. *Comets do not wholly conſiſt of Vapours, Exhalations, or ſuch other diſſipable Matter, as was formerly ſuppos'd: Otherwiſe they muſt have been utterly uncapable of ſuſtaining any Part of ſo violent a Heat, (which yet we ſee they ſometimes do) without an entire Diſſipation and Diſſolution.*

Coroll. 2. *Whereas the Atmoſphere of a Comet is chiefly a Fluid, and yet but a ſmall Part thereof by the utmoſt Heat capable of Rarefaction (which appears from the but ſmall Diminution of the Atmoſphere when the Tail is largeſt, and the Heat moſt intenſe) 'tis evident that its Fluid is a very different one from thoſe we are here acquainted withal. For ſince the main Bulk thereof retains its Conſtitution and Situation quite through the Action of the moſt violent Heat imaginable; which would diſſipate and rarify all the Watery, and perhaps Earthy Parts viſible with us; it muſt, by its mighty Denſity, Gravity, Compactneſs, or ſome other Property not belonging to Fluids here on Earth, be uncapable of greater Expanſion than it has of it ſelf; and be a Compact, Denſe, or Heavy Fluid, or Maſs of Fluids, of which we have no obvious Example; and for which we have no proper Epithet or Name among us.*

Coroll. 3. *Tho Vapour, or the ſmall Parts of Water, be the ſooneſt ſubject to Rarefaction; and the Tail of a Comet, before its Approach to the Sun, be therefore perhaps nothing but a Miſt or Steam of ſuch Vapours; yet may the ſame Tail after the* Perihelion *be in part compoſed of more groſs, heavy and opake Corpuſcles. For when the Intenſeneſs of the Heat in the* Perihelion *is ſufficient to diſſove and rarify not Vapour alone, but Sulphur, Nitre, Coal, or other groſs and earthy Steams and Exhalations; whatſoever of ſuch a Nature the Atmoſphere of the Comet contains, will ſure be*

be in ſome ſort affected, and elevated with the Vapour in the Tail, upon ſuch an Approach of the Comet to the Sun as we are ſpeaking of. Tho' therefore the Tail ſhould be ſuppos'd in its Deſcent towards the Sun to be pure unmixed Vapour, or watery Particles, (as withal the utmoſt Regions of the Atmoſphere it ſelf in probability are ;) yet the ſame Tail after the Perihelion, *ought to be eſteem'd a more Heterogeneous and impure Mixture ; eſpecially in the loweſt Spaces of it, and thoſe Parts which are neareſt to that Atmoſphere it ſelf, from whence the whole does proceed.*

LXIX. The Diurnal Motion of Planets is in it ſelf perfectly diſtinct from, and wholly independent on the Annual. This I hope will be univerſally granted without any Neceſſity of a Demonſtration.

LXX. If a *Chaos*, *i. e.* a confuſed fluid Maſs or *Congeries* of Heterogeneous Bodies, (ſuppoſe it were a Comet's Atmoſphere, or any other ſuch like irregular *Compoſitum* of mingled Corpuſcles) in its Formation were ſubject only to an Annual Motion about the Sun, without any Diurnal Rotation about an *Axis* of its own ; the Figure thereof would be that of a perfect *Sphere* ; as from the uniform Force of Gravity, and conſequent Equilibration of Parts on all Sides, is eaſily demonſtrable. But if during its Formation it had a Diurnal Rotation about an Axis of its own, the Figure thereof, (by reaſon of the great Velocity and conſequent *conatus recedendi à centro motus*, diminiſhing the Force of Gravity at the Equatorial Parts) would be that of an *oblate Sphæroid*, ſuch as an *Ellipſis* revolving about its leſſer *Axis* would generate.

LXXI. If a Planet conſiſted in great meaſure of an Abyſs or denſe internal Fluid, and a Cruſt or Shell of Earth plac'd on its Surface ; tho' the Diurnal Rotation were not begun at the Formation

thereof from a *Chaos*, and ſo its original Figure were *Spherical*; yet upon the commencing of the ſaid Diurnal Rotation, it would degenerate immediately into that of an *oblate Sphæroid*, and retain it afterward, as well as if it had put on the ſame at its primary Formation.

Corollary. *Since therefore the greater Quickneſs of the Vibrations of the ſame* Pendulum, *and the greater Gravitation of Bodies near the Poles than the Equator, conſequent thereupon, demonſtrate the former Regions of the Earth to be nearer its Center than the latter; and that conſequently the Figure is that of an* Oblate Sphæroid; *'tis evident, that either the Diurnal Motion commenc'd before the Original of its preſent Conſtitution; or that its internal Parts are in ſome degree Fluid, and ſo were pliable and alterable on the after commencing of ſuch Diurnal Rotation. And this Corollary extends equally, if not more to* Jupiter; *whoſe Diurnal Rotation is quicker than our Earth's, and by conſequence its Figure farther from Spherical. Thus by* Sir Iſaac Newton's *Calculation the Diameter of the Equator of the Earth is to the* Axis *thereof only as* 231 *to* 229. *But in* Jupiter, *according to the ſame* Sir Iſaac Newton's *Calculation in his laſt Edition, as about* 9 *to* 8. *Which is very conſiderable and ſenſible; and accordingly atteſted to by the concurrent Obſervations of* Caſſini *and Mr.* Flamſteed.

LXXII. If ſuch an upper Cruſt or Shell of Earth on the Face of the Abyſs, were fix'd and conſolidated before the Diurnal Rotation thereof commenc'd, it would remain entire, continued, and united all the time of its Spherical Figure, or all the time it had no other than an Annual Revolution. But by the Beginning of the Diurnal Rotation; which would make the Surface of the Abyſs and its ſuſtained Orb of Earth put on the Figure of the *Oblate Sphæroid* before-mention'd; that

that Upper Orb muſt be ſtretch'd, chap'd, and crack'd; and its Parts divided by perpendicular Fiſſures. For the Periphery of an *Ellipſis* being larger than that of a Circle where the *Area* is equal; and the Superficies of a *Sphæroid* generated by its Circumvolution, conſequently, larger than that of a Sphere generated by the like Circumvolution of a Circle, which is the preſent Caſe; that Orb of Earth, 'tis plain, which exactly fitted, and every way enclos'd the Abyſs while it was a Sphere, would be too little and ſtrait for it, when it after became a *Sphæroid*; and muſt therefore ſuffer ſuch Breaches and Fiſſures as are here expreſs'd. And if it be objected, that ſince the firſt *Impetus* of the Denſe Fluid tending to the ſtretching and breaking of the Orb above, is infinitely leſs than any ſucceeding *Impetus* acquir'd by Motion; and ſince there is at firſt no Room for actual Motion, there cannot be *Impetus* ſufficient to break the Cruſt; I anſwer, that this Objection might deſerve to be conſider'd, if the Mechanical Cauſe which we ſhall hereafter aſſign of the Diurnal Rotation, *viz.* the Oblique Colliſion of a Comet, was not ſufficient to take away the Foundation of it. It being probable that this prodigious Impulſe alone would break the upper Cruſt in ſome meaſure it ſelf, and ſo make way for that ſucceeding *Impetus* of the Diurnal Motion which would then have its Effect, and cauſe ſtill more of thoſe Breaches and Fiſſures in the upper Cruſt, which are taken notice of in this Propoſition.

LXXIII. The State of Nature in a Planet, conſtituted as above, while it had only an Annual Revolution, would be as follows.

(1.) By reaſon of the ſame Face of the Planet's reſpecting continually the ſame *Plaga* of the Heavens, or the ſame fix'd Stars; and its continual Paral-

Paralleliſm to it ſelf; all the apparent Revolution of the Sun muſt depend on the annual Motion; and *A Day and a Year be all one.* This is evident, becauſe, as *a Year* is truly that Space in which the Sun ſeemingly, and the Earth really performs a ſingle Revolution round the *Ecliptick*; ſo *a Day* is truly that Space in which the Sun paſſes, or appears to paſs from any certain Semi-Meridian to the ſame again once: Which Spaces of Time are here the very ſame, and ſo the Appellations themſelves *Year* and *Day*, may indifferently and promiſcuouſly be apply'd thereto.

(2.) The Courſe of the Sun and Planets, (for the fix'd Stars were then *Fix'd* indeed; having neither a Real nor Seeming Motion) muſt be contrary to what it has appear'd ſince: Their Riſing being then in the *Weſt*, and their Setting in the *Eaſt*; which, from the way of the preſent Diurnal Rotation, has ſince, as all know, been quite different.

(3.) There muſt be a perpetual Equinox, or Equality of Day and Night, through the whole Planet; by reaſon of the Sun's deſcribing each Revolution a great Circle about the ſame, on which alone ſuch an Equality depends.

(4.) The Ecliptick muſt ſupply the Place of an Equator alſo; and the Torrid, Temperate, and Frigid Zones be almoſt alike diſpos'd with regard to that Circle, as with us they are with regard to the real Equator.

(5.) To ſuch as liv'd under or near the ſaid Ecliptick, the Poles of the World or Ecliptick, the only ones then in Being, would be at or near the Horizon; and ſo not conſiderably elevated or depreſs'd to the Inhabitants there. But upon the commencing of a quicker Diurnal Rotation, the

ſame

ſame way with the Annual, the Caſe would be in all theſe Particulars quite different. For,

(1.) By reaſon of the Quickneſs of the new Diurnal, in compariſon of the Ancient and Continued Annual Revolution, *Days* and *Years* would be entirely diſtinct Spaces of Time: The Sun returning to the ſame Meridian very often, while (from one Tropick to another, and ſo to the ſame again) he appear'd to have compleated his longer annual Period.

(2.) By the Diurnal Rotation of the Planet from *Weſt* to *Eaſt*, the moſt ſenſible Revolution of the Sun, of the other Planets, and of all the Heavenly Bodies, would be from *Eaſt* to *Weſt*; and they would all Riſe at the former, and Set at the latter Part of the Horizon.

(3.) The perpetual Equinox would be confin'd to the Equatorial Parts of the Planet; and all other Countries would have longer Days in Summer, and ſhorter in Winter, as now obtains in the World; when only *March* 10, and *September* 12, have Day and Night equal to each other through the whole Earth.

(4.) The Ecliptick and Equator would be entirely different; the latter a real Circle, or Line, on the Planet, equally diſtant from its own proper Poles; the former confin'd to the Heavens, and not, with reſpect to the Planet, eaſily to be taken notice of. The Torrid, Temperate, and Frigid Zones would regard the new Equator, and be from it diſtinguiſh'd and diſpos'd almoſt in the ſame manner as before they were from the Ecliptick, and that with greater Niceneſs, and more exact Boundaries.

(5.) The Poles of the World, which before were to the Inhabitants near the ancient Ecliptick, neither conſiderably elevated nor depreſs'd, but

ſituate

ſituate near the Horizon, would ſeem entirely chang'd, and particularly at the Interſection of ſuch ancient Ecliptick, and the ſucceeding *Northern* Tropick, the *Northern* Pole would appear to be elevated above, the *Southern* depreſs'd below the Horizon; and the Sun and Planets, whoſe Motions were before either exactly or nearly over the *Vertex*, and ſo at or almoſt at right Angles, the Horizon would appear inclin'd or bent towards the *Southern* Parts; and that way become oblique, and at plainly unequal Angles with the Horizon for ever after.

Corollary 1. *To the Inhabitants of that Place laſt mention'd, the Beginning of the Night, and of the Autumn, or Sun-ſet, and the Autumnal Equinox, would in ſuch a primitive State of a Planet, be either exactly or nearly coincident: And* vice verſâ, *the Place to which they were ſo coincident, was that Interſection juſt now aſſign'd, or at leaſt under the ſame Meridian therewith.*

Coroll. 2. *Such a Planet would be more equally habitable in the ſecond, than in the firſt State. For, from the ſpherical Figure of the Planet at firſt, the Central Hot Body, (of which hereafter) would equally reach all the Regions; and the Sun chiefly affect the Torrid Zone; and ſtill leſs the Temperate, but leaſt of all the Frigid ones; as he does at preſent. So that if any one of theſe Climates, by reaſon of the due Proportion of Heat afforded it from the Sun, were habitable, neither of the other could with any ſort of Equality be ſo too. But when the Figure of the Planet became an* oblate Sphæroid, (*as on the commencing of the Diurnal Rotation we have ſhew'd it would;*) *the Proportion of Heat would be upon the whole more equable through the ſeveral Climates of the Planet; the greater Vicinity of the Central Hot Body to the Frigid Zones, in ſome meaſure* [illegible] *the* [illegible] *neſs of the Sun's*

Vid. Arg. 7. Hypoth. 1. infra.

Peſition to the Torrid one; and rendring the compleat Surface of the Planet ſomewhat more univerſally habitable on account thereof.

Coroll. 3. *Where the States of External Nature are ſo very different (as on the ſame Planet before and after its Diurnal Rotation begin, they appear to be;) 'tis reaſonable to ſuppoſe, that the Natures, Conſtitutions, and Circumſtances of Creatures, which were the Inhabitants in ſuch different States, muſt be ſuitably and proportionably different from one another.*

Coroll. 4. *'Tis therefore, without due Allowance for every thing, very unſafe arguing from one State or its Circumſtances to another; and very unjuſt to conclude Things unaccountable or abſurd in one, only becauſe they are ſtrange and unknown to the other State. The like is to be ſaid of Phraſes, Deſcriptions, or Relations concerning one, which may eaſily be miſunderſtood in the other, without an exact Conſideration and Allowance for the Diverſity of Things belonging thereto.*

LXXIV. If the Atmoſphere of a Comet, or any other ſuch a fluid, confuſed *Chaos*, were by a regular and orderly Digeſtion and Subſidence brought into a conſiſtent and durable State; the univerſal Law of ſpecifick Gravity muſt prevail, and each Maſs take its Place, generally ſpeaking, according to it, (whether 'twere fluid or ſolid) from the Center to the Circumference of the whole.

LXXV. Fluids are at leaſt as capable of all Degrees of Denſity and ſpecifick Gravity, as Solids. Thus the Proportion of the heavieſt and lighteſt Fluids, Quickſilver, and Oil, are nearly as fifteen and one; when yet the Proportion of the heavieſt Solid, Gold, and the lighteſt Earth or Mold which we find here, is not quite as ten to one. On which account, 'tis highly reaſonable to allow, that poſſibly there may be as much Variety

and

and Diverſity in the Fluids belonging to a Planet, as we ſee there is in the Solids thereof.

Corollary. *From theſe two laſt* Lemmata, *it appears as reaſonable to ſuppoſe a great Part of the internal Conſtitution of a Planet to be a Fluid, or Syſtem of Fluids, as to be a Solid or Syſtem of firm and earthly* Strata, *which yet is uſually ſuppos'd; and which of theſe* Hypotheſes *beſt ſuits the Conſtitution of the Original* Chaos, *and the* Phænomena *of Nature afterward, is in reaſon to be embrac'd.*

LXXVI. In the regular Formation of a Planet from a *Chaos*, it muſt be much more rare and unuſual to lodge very heavy Fluids near the ſuperficiary Regions, among Bodies of a lighter and rarer Texture, than Solids equally ſo. For the Corpuſcles of very denſe and heavy Solids, when they are once entangled among, and mix'd with others, tho' of very different Denſity and ſpecifick Gravity, muſt afterward (let the Place proper for Bodies of their Weight be never ſo much nearer the Center,) lye according to their firſt caſual Situation. Thus if you take Duſt of Gold, Silver, or Braſs, with Sand, Gravel, or Saw-duſt, and mix them, or let them ſubſide indifferently together, as they place themſelves at firſt, ſo, notwithſtanding their different Weight, will they be ſituate ever after. But in Fluids the Caſe is quite otherwiſe, for they will obtain their due Place, not only when mix'd with Fluids, but with any ſolid Corpuſcles whatſoever. Nay, beſides that, they will penetrate the Interſtices of Bodies heavier than themſelves; and unleſs where thoſe Bodies are firmly conſolidated or conjoin'd together, will ſettle into, and fill up the ſame, without any regard to the Situation according to ſpecifick Gravity. Fluids are compos'd of moveable, ſeparable Parts, diffuſing, ſubſiding, and flowing every where, and thereby will be ſo

far from reſting at Regions too high and remote from the Center, conſidering their ſpecifick Gravity, that how light ſoever they are, unleſs the earthy Parts under them be either fix'd and conſolidated, or their Interſtices already entirely fill'd and ſatur'd, they will inſinuate themſelves, and by degrees approach as near as poſſible to the Center of that Planet to which they belong.

Corollary 1. *Tho' our Earth ſhould contain vaſt Quantities of denſe and heavy Fluids within, as well as like denſe and heavy Solids; yet 'tis more ſtrange that we have near the Surface one* Specimen *of the former,* (viz. Quickſilver) *than that we have ſo many Sorts, and ſo much larger Quantities of the latter* (*the Mineral and Metallick Bodies*) *much denſer and heavier than that common Earth among which they are found.*

Coroll. 2. *No Argument can be drawn from the Variety of denſe and heavy Solids, and the ſingle Inſtance of denſe and heavy Fluids, to prove the Improbability of a ſubterraneous, denſe and heavy Fluid, or Syſtem of Fluids, on whoſe Surface our Orb of Earth may be ſuppos'd to rely; if the other* Phænomena *of Nature require ſuch an* Hypotheſis.

LXXVII. If a *Chaos* were chiefly compos'd of a denſe Fluid, of greater ſpecifick Gravity than its ſolid, dry, or earthy Parts, the Place of ſuch a denſe Fluid upon regular Formation, would be neareſt the Center, and the ſolid or earthy Maſs would encompaſs it round, encloſe it within it ſelf, and reſt upon its Surface; and *vice verſâ*, if an Orb of Earth be ſituate on the Surface of a Fluid, that Fluid is denſer and heavier than the entire Columns of ſuch an Orb of Earth conſider'd together.

LXXVIII. If a Solid be either contain'd in, or fall upon a Fluid of greater ſpecifick Gravity than

it

it ſelf, it will neither ſink to the Bottom, ſubſide entirely within, nor emerge quite out of the ſame; but Part of it remaining immers'd, the other Part will be extant above the Surface of the Fluid; and that in a different Degree, proportionably to the different ſpecifick Gravity of the Solid, compar'd with that of the Fluid.

LXXIX. Such a Solid will continue to that certain Depth immers'd in the Fluid before-mention'd, that if the Space taken up thereby were fill'd with the Fluid, that Portion of the Fluid were exactly equal in Weight to the whole Solid. Thus, if a Cube of Wood or Braſs were immers'd in a Fluid of twice its ſpecifick Gravity, it would one half ſubſide within, and the other half be extant above the Surface of the Fluid. If it were immers'd in a Fluid of thrice its ſpecifick Gravity, two thirds of it would be extant, and but a third Part inclos'd within the ſaid Surface, and ſuitably hereto in all other Proportions whatſoever. Theſe two Propoſitions are demonſtrated by *Archimedes*, and are the known Foundations of *Hydroſtaticks*.

LXXX. If therefore ſolid Bodies, equal in viſible Bulk, or taking up equal Spaces, but of unequal Denſity and ſpecifick Gravity, reſt upon the Surface of a Fluid denſer and heavier than themſelves, they muſt remain immers'd in the ſame in different Degrees; the heavieſt ſinking deepeſt, and the lighteſt being the moſt extant above the Fluid. Thus, if ſix ſeveral Cubes of equal apparent Magnitude, made of Gold, Lead, Silver, Braſs, Iron, and Stone, were laid upon the ſame Fluid denſer and heavier than any of them, every one ſeverally would ſink ſo much deeper as it was heavier, and thereby the upper Surface ariſing from them all, become very unequal.

LXXXI. If upon the firſt general Digeſtion and Separation of Parts in a *Chaos*, the upper Regions are for the moſt part compos'd of liquid or fluid Bodies, with only a few dry, ſolid, or earthy Parts intermix'd; the outward Surface, after the Formation is entirely over, will be ſmooth and even, as the Surface of Liquors conſtantly of it ſelf is. But if, on the contrary, the Quantity of dry, ſolid, or earthy Parts be vaſtly greater than of the liquid or fluid ones, the Surface will be rugged and uneven, by the different Degree of the Immerſion of the different Columns thereof, in that denſe Fluid or Abyſs upon which the Orb is plac'd.

Corollary 1. *In the former Caſe all the Corpuſcles will obtain their proper Place, (the Fluidity freely permitting their Paſſage,) according to their reſpective ſpecifick Gravity. But in the latter they muſt take their Places rather according as they chanc'd to be before ſituate, than according as their ſpecifick Gravity would of it ſelf determine them. The Caſe of that Part of the* Lemma, *and of this* Corollary, *being almoſt the ſame with that before-mention'd; where the Duſt of Gold, Silver, or Braſs, with Sand, Gravel, or Saw-duſt, are ſuppos'd to be let fall uncertainly upon a Fluid heavier than the whole mixed Maſs taken together; For thoſe Columns where the Gold, and other Metallick Duſt were predominant, ſinking fartheſt into the Fluid, and thoſe where Sand, or the other lighter Particles were ſo, not ſo far; the upper Surface muſt be uneven; and withal the ſeveral Species of Corpuſcles muſt retain that Place where they chanc'd to be at firſt diſpos'd, without any Poſſibility of recovering any other which by the Law of ſpecifick Gravity were due to them.*

Coroll. 2. *If therefore the upper Regions of a* Chaos, *whoſe Quantity of Liquid is very ſmall in compariſon of its ſolid Corpuſcles, do ſubſide into a Fluid*

of greater ſpecifick Gravity than its own Columns taken together are, an Orb of Earth will be compos'd on the Surface of the Fluid; and its different Columns being made up of Bodies of very different Natures and ſpecifick Gravities, (as muſt happen in ſuch a confuſed heterogeneous Maſs, as we call a Chaos, *particularly the Atmoſphere of a Comet;) that Orb will ſink into the Fluid in different Degrees; and thereby render its Surface unequal, or diſtinguiſhed into Mountains, Plains, and Vallies. So that by how much any Column was compos'd of rarer, more porous, and lighter Bodies, by ſo much would it produce a higher Mountain; and in like manner, by how much a Column was compos'd of more cloſe, fix'd, denſe and ſolid Bodies, by ſo much would it produce a lower Valley; and ſo* vice versâ, *the higher any Mountain, the more rare, porous, and light its Column; and the lower any Valley, the more fix'd, cloſe, denſe, and ſolid its Column muſt needs be ſuppos'd.*

Coroll. 3. *If therefore any Planet be immediately in its firſt Formation of an unequal Surface, compos'd of Mountains, Plains, and Valleys; and the Order of its internal* Strata *be diſagreeable to the Law of ſpecifick Gravity; it has exactly proper Indications to prove, that the Quantity of Fluids in the upper Regions was originally ſmall in compariſon of its earthy Parts, and that ſuch an uneven Orb is ſituate on a Fluid denſer and heavier than it ſelf.* [Which Caſe how exactly it correſponds to the known Circumſtances of our Earth, is left to the Conſideration of the *Reader*.

LXXXII. If any of the Heavenly Bodies be plac'd near a Planet, by the Inequality of its Attraction of the Parts at unequal Diſtances from it, a double Tide, or Elevation of the Fluids thereto belonging, whether they be inclos'd within an Orb of Earth, or whether they be on its Surface above,

above, muſt certainly ariſe; and the Diurnal Rotation of ſuch a Planet being ſuppos'd, muſt cauſe ſuch a ſucceſſive Flux and Reflux of the ſaid Fluids, as our Ocean is now agitated by. Thus, if *adbc* be the Earth, and *biDb* be a Comet, or any of the Heavenly Bodies plac'd near the ſame, and the upper Orb of the Earth be ſituate above a vaſtly large fluid Abyſs, the Comet or Heavenly Body will conſiderably more attract the nearer Parts about *b*, than it does thoſe about the Line *dc*, or the middle Parts of the Earth; by which Attraction where-ever the Particles attracted are not ſolid, fixed, and unmoveable, they will be elevated or raiſed into a Protuberance *dbc*. In like manner, the Comet or Heavenly Body will conſiderably more attract the middle Parts near the Line *dc*, than thoſe more remote about *a*, and thereby occaſion their ſlower Motion towards it ſelf, than that of the foreſaid middle Parts; and conſequently permit them to remain farther off the Center; or, which is all one, to elevate themſelves into the oppoſite Protuberance *dac*. And this Effect not depending on the Situation of the Fluid under the Orb of Earth, is equally evident with reſpect to the Atmoſphere and Ocean upon, as any Abyſs beneath the ſame, and ſo muſt cauſe a double Tide or Elevation of the Fluids of the Globe. And this double Tide, by the Diurnal Rotation of the Earth from *Weſt* to *Eaſt*, will ſhift continually from *Eaſt* to *Weſt*, and cauſe the Elevation and Depreſſion of the Ocean twice each Revolution, which we ſo wonder at, and take ſo much notice of amongſt us.

Corollary 1. *Since therefore the Vicinity of the* Moon, *and the Vaſtneſs of the* Sun's *Body, make their Force conſiderable with regard to the Fluids of*

our Earth, their ſeveral Attractions muſt produce two ſeveral double Protuberances, Tides, or Elevations of the Ocean and Atmoſphere thereof; whence muſt ariſe very remarkable Phænomena *relating thereto; of which in the following* Corollaries.

Coroll. 2. *The ſenſible Elevation or Tide would be only double, as if it aroſe from one of the Luminaries, but ſuch as from the Compoſition of their attractive Powers were to be expected.*

Coroll. 3. *When therefore the* Sun *and* Moon's *Forces unite, or when they are ſituate in or near the ſame Line through the Center of the Earth, which happens only at the New and Full* Moon, *the Tides muſt be the greateſt; and when their Forces contradict each other, or when they are ſituate in or near the middle between the New and Full, at the Quadratures; the Tides muſt be the leaſt. In the former Caſe, the viſible Flux and Reflux ariſes from the* Sum; *and in the latter, from the* Difference *of their Attractions; and ſo the Spring-Tides, after the New and Full, are the Reſult of the Elevation and Depreſſion of both the* Sun *and* Moon *conjointly; but the Nepe-Tides, after the Quadratures, the Reſult only of the prevailing Elevation and Depreſſion of the* Moon *above thoſe of the* Sun; *and by conſequence, exactly agreeable to Experience, much leſs than the other.*

Coroll. 4. *As, if the Luminaries were ſituate in the* Axis *of the Earth, the Diurnal Revolution would not more expoſe any Places to their Force one time than another, and no Reciprocation of Flux and Reflux would ariſe; ſo the nearer they are to ſuch a Poſition, the leſs muſt ſuch a Reciprocation be, and the farther from ſuch a Poſition, the greater. On which account, the Elevation or Tide muſt be greater after the* Equinoctial *New and Full* Moon, *than after the* Solſtitial; *and the higheſt Spring-Tides be thoſe after*

after March 10. *and* September 12. *as all Experience atteſts them to be, and the Situation of the Luminaries near the Equator of the Earth, and fartheſt from the Poles, does require.*

Coroll. 5. *Since by the Vicinity of the* Moon, *the viſible Tides follow her Influence; and ſince withal our Earth in about* $24\frac{3}{4}$ *Hours, recovers the ſame Situation with regard to her; 'tis evident, That in the ſaid Space, each Part of the Ocean muſt have twice been elevated, and twice depreſs'd, or had a double Flux, and double Reflux of its Waters, as all Obſervation aſſures us it really has.*

LXXXIII. The Elevations or Tides cauſed by two different Bodies at the ſame Diſtance, are always proportionable to the Quantity of Matter in the ſame attractive Bodies; as from the Force of Gravitation in general, proportionable to the attracting Body, will eaſily be underſtood. Vid. *Lem.* 7. *prius.*

Thus if a Comet or Planet, whoſe Quantity of Matter were ten or twelve times as much as the *Moon*'s, were at an equal Diſtance with her from the Center of the Earth, the Tides, whether of the internal Abyſs, if ſuch there be, or external Air and Water, would be ten or twelve times as high as thoſe ſhe is the Cauſe of with us.

LXXXIV. The Elevations or Tides cauſed by the ſame, or an equal Body at various Diſtances, are *reciprocally* in a *triplicate Proportion* of ſuch Diſtances. Thus if the *Moon* ſhould approach as near again to the Earth's Center, as now ſhe is, the Tides would be eight times as high; if thrice as near, twenty ſeven times as high; if four times as near, ſixty four times as high as thoſe ſhe at her preſent Diſtance produces.

Corollary 1. *Hence appears (which Dr.* Bentley *has in part alſo obſerv'd) a ſignal Inſtance of the Divine Providence reſpecting the Conſtitution of* Serm. 8. p. 14.

the World in placing the Heavenly Bodies at ſo vaſt a Diſtance from each other, and the greateſt at the greateſt Diſtance, that when we conſider it, we cannot but be amazed at it. For had they been ſituate conſiderably near to one another, they would have caus'd prodigious Diſorders; and in particular ſuch deſtructive Tides, wherever there were vaſt Quantities of Fluids, or a great Ocean, that neither Plant nor Animal could have avoided its Force, or ſuſtain'd its Fury; which by the wiſe placing the Heavenly Bodies at ſo vaſt a Diſtance is entirely prevented.

Coroll. 2. *The ſame careful Providence is alike, and on the like accounts, conſpicuous in the Smalneſs of the ſecondary Planets; whoſe Nearneſs otherwiſe being ſo great, muſt have been attended with the forementiond Inconveniencies; but is now perfectly ſecure from them. Thus, for Inſtance, our ſecondary Planet, the* Moon, *which is ſo near to us, is withal ſo ſmall,* (*ſcarce the* 39*th Part ſo big as the Earth, ſcarce the* 3700*th Part ſo big as* Saturn, *or the* 8600*th as* Jupiter, *and ſcarce above the nine millioneth ſo big as the* Sun) *that the Tides ſo cauſed are but of ſome few Feet in Height, very moderate, not at all incommodious, nay, in truth, very advantageous to us; which in the other ſecondary Planets is no leſs true, and no leſs remarkable.*

Lem. 36. prius.

LXXXV. Of the two Protuberances produc'd by the Preſence of a Comet, or other Celeſtial Body, that which is directly towards that Body, as *d b c*, is larger and higher than the oppoſite one, *d a c*. This is *à priori* demonſtrable; and tho' it be too ſmall to be obſerv'd in the Tides of our Earth, yet will it be very ſenſible in that Caſe to which the *Lemma* is hereafter to be apply'd.

Fig. 7.

LXXXVI.

LXXXVI. If ſuch a double Tide were very great, and ſhould on a ſudden be produc'd in a ſubterraneous Abyſs, on whoſe Surface an Orb of Earth, fix'd and conſolidated together, were ſituate, it would raiſe or depreſs the Regions of that Orb, as it ſelf was rais'd or depreſs'd; and by putting on the Figure of an *Oblong Sphæroid*, (ſuch as an *Ellipſis* revolving about its longer *Axis* would generate) and thereby increaſing its Surface ſo much, that the Orb of Earth could not fit and incloſe it uniformly as before, would ſtrain and ſtretch the ſaid Orb of Earth, would crack and chap it, and cauſe Fiſſures and Breaches quite through the ſame; or if ſuch there were already, it would afreſh open and divide the ſame. All which is eaſily underſtood from what has been already ſaid of a Caſe very agreeable to this we are now upon; and ſo can ſtand in need of no farther Explication here. *Lem.* 72. *prius.*

Corollary 1. *Since in a Comet approaching to a Planet, this Force does increaſe in a triplicate Proportion of the Diſtance reciprocally; If the Quantity of the Elevation of the two oppoſite Tides be known, and the Magnitude of the Comet be known, its neareſt Diſtance will by Calculation be determined: And ſo if the Elevation be known, and the neareſt Diſtance, the Magnitude of the Comet will thereby be determined alſo.*

Coroll. 2. *Since therefore from the Knowledge of the neareſt Diſtance, the Magnitude of the Comet is diſcoverable, both by the Quantity of the Eccentricity of the Earth's Orbit, as in* Coroll. 2. *to* Lem. 55. *and by the Elevation of the two oppoſite Tides as in this,* i. e. *by two ways, the former of which implies the Increaſe of the Force in a ſingle Proportion of the Diſtance reciprocally, and the latter in a triplicate reciprocally; to find a Comet*

which ſhall comply with both theſe Methods, is to find one ſingle given Comet of one ſingle Magnitude, and no other. So that by theſe two ways taken together the Magnitude of the Comet is exactly determined. For if any other Comet be ſuppos'd leſſer or greater, it muſt then be nearer or farther off to produce the ſame Effects; and if it be ſo much nearer or farther off, as one Phænomenon *requires, it will be too near or too far for the other* Phænomenon, *and ſo perpetually: So that none but one ſingle Magnitude and one ſingle Diſtance will correſpond to both* Phænomena.

BOOK

BOOK II.

HYPOTHESES.

I. THE Ancient *Chaos*, the Origin of our Earth, was the Atmoſpnere of a Comet.

This Propoſition, however new and ſurprizing, will, I hope, appear not improbable, when I ſhall have ſhewn, That the Atmoſphere of a Comet has thoſe ſeveral Properties which are recorded of the Ancient *Chaos*: That it has ſuch peculiar Properties beſides, as lay a rational Foundation for ſome of thoſe *Phænomena* of our Earth, which can ſcarce otherwiſe be philoſophically explain'd; ann that no other Body, or Maſs of Bodies now known, or ever heard of in the World, can ſtand in Competition, or ſo much as pretend to the ſame Character, which it ſo agreeably correſponds to: Which will be the Deſign of, and ſhall be compriz'd under the following Arguments.

See the Teſtimonies about the Chaos *cited at the firſt* Phænomenon *afterward.*

(1.) The Names of theſe two Bodies, or Syſtems of Bodies, are exactly the ſame, and equally agreeable to the Nature of each of them. The Original *Chaos*, by the Ancient Tradition of the *Phœnicians*, was ſtil'd, Ἀὴρ ζοφώδης καὶ πνευματώδης, and Πνοὴ Ἀέρος & ζοφώδης; in *Engliſh*, *A dark and ſtormy Atmoſphere*. Which Appellation, (the conſtant Character of that Maſs encompaſſing the Body of a Comet, and at the ſame time of the old *Chaos*) if we ſuppoſe it to have been as fitly by Antiquity apply'd to the latter, as certainly, Obſervation being

ing Judge, it is to the former; is as proper a one for our preſent Purpoſe, as could poſſibly be deſir'd.

(2.) The main Bulk of the ancient *Chaos*, and of the Atmoſphere of a Comet, is a Fluid, or Syſtem of Fluids. As to the former, 'tis both neceſſary to be preſuppos'd in order to the ſucceeding Separation, and regular Diſpoſition of the Parts; and is confirm'd by all the Accounts of it. But *Moſes* himſelf being expreſs, I ſhall content my ſelf with his ſingle Teſtimony; who not only
Gen. i. 2. calls it an *Abyſs*, but gives it the Stile of *Waters*. *Darkneſs was upon the face of the deep, and the Spirit of God moved upon the face of the waters.* Now, that the main Part of a Comet's Atmoſphere is alſo a Fluid, appears both by its Pellucidneſs, (a thing unuſual in Bodies, but ſuch as are, or once were in a fluid Condition) and by thoſe perpetual Changes and Agitations of Parts within the Regions of it, which in any other than a Fluid are plainly impoſſible; and which indeed, withal, have hitherto ſeem'd ſo viſible and remarkable, that thence Men were ready to imagine the whole Maſs to be nothing elſe but a Congeries of Vapours or Clouds, uncertainly jumbled together, and as uncertainly diſſipated again.

(3.) The *Chaos* is deſcrib'd to have been very ſtormy and tempeſtuous; of which ſome of the ancient Writers take particular notice. To which thoſe frequent and violent Agitations and Changes, thoſe ſtrange, uncertain Hurries of Opake Maſſes hither and thither, which the *Phænomena* of Comets Atmoſpheres preſent us with, moſt exactly agree.

(4.) The *Chaos* was a mixed Compound of all Sorts of Corpuſcles, in a moſt uncertain confus'd and diſorderly State; heavy and light, denſe and rare,

rare, fluid and ſolid Particles were in a great meaſure, as it were at a Venture, mingled and jumbled together. The Atoms, or ſmall conſtituent Parts of Air, Water and Earth, (to which, together with Fire, the Name of *Element* has been peculiarly apply'd) every one were in every Place, and all in a wild diſturb'd Confuſion. This is the very Eſſence, and enters the Definition of a *Chaos*; in which therefore all both do, and muſt agree. And if any one carefully conſiders the perpetually various Viſage of a Comet's Atmoſphere, its vaſt Extent, the no manner of Order or Method of its ſeveral Appearances, and remembers that in ſome Comets it has in its near Approach to the *Sun*, been ſcorch'd and burn'd by a Degree of Heat many hundred times as Intenſe as the *Sun*'s is with us in the midſt of *Summer*, he will not wonder that I aſſert the Parts of this Atmoſphere to be in a perfectly confus'd and *Chaotick* Condition. One might indeed as well, and as reaſonably, expect Order and Method in the ruinous Relicks of a City burnt to Aſhes, or in the Smoke proceeding from the ſame, as in ſeveral, at leaſt, of thoſe Atmoſpheres we are ſpeaking of.

(5.) The ancient *Chaos*, juſt before the Beginning of the ſix Days Creation, was very dark and caliginous. *Darkneſs was upon the face of the deep*, ſays the ſacred, and the very ſame ſay the prophane Writers. Now, when we every Year ſee how far that ſmall Company of collected Vapours, of which a Cloud conſiſts, can go towards cauſing Darkneſs on the Face of the Earth; we may eaſily gueſs how thick the Darkneſs of the Comet's Atmoſphere muſt needs be, when all thoſe earthy and watery Corpuſcles, which flying up and down in the vaſt Regions thereof, do now ſo often, and ſo much obſcure the Comet's central Body,

Gen. i. 2.

dy, and are here ſo very ſenſible; when all theſe, I ſay, ſhall riſe up, and make a confus'd cloudy Orb on the more confin'd Surface of the Atmoſphere of many ſcores, if not hundreds of Miles thick; as muſt happen in the Beginning of its Formation. If this be not ſufficient to account for this thick *Darkneſs on the Face of the Abyſs*, I know not what can. So that if we refer the words of *Moſes* to the proper and peculiar Time only, when they are introduc'd, *viz.* That juſt before the Beginning of the ſix Days Creation, that Place of the *Chaos* where afterward the Earth's Surface and the Air was, had Darkneſs on its Face; we have ſufficiently here already accounted for it. But if we ſuppoſe that the Darkneſs refers alſo to all the ancient Time *prior* to this Creation, and thence object, that the Atmoſphere of a Comet, which is a tranſparent Fluid, and illuminated continually, cannot be that dark *Chaos* in *Moſes*; I anſwer, That tho' indeed, "All the upper Part of the "Atmoſphere of a Comet, thro' which we ſee "the fixed Stars, is tranſparent, yet the loweſt "Part next the *Nucleus*, or denſe Body, ſeems "to be opake and dark like a very thick Miſt, "ſo as to hide the *Nucleus* it ſelf from our Sight, "and cauſe *Darkneſs upon the Face of the Deep.* "For the Changes which ſome obſerve in the "*Nucleus* of Comets are to be ſuppos'd not in the "ſolid Body, but in the cloudy Bottom of the "Atmoſphere, which next encompaſſes the *Nu-*"*cleus*. And this *Darkneſs upon the Face of the* "*Deep*, might continue till the Comet was grown "cold, and all the denſer Part of the Atmo-"ſphere was ſubſided; and be greateſt while "thoſe denſer Parts were in a State of coagulating "and ſubſiding; *i. e.* at the particular Time di-"rectly referr'd to in the *Moſaick* Hiſtory.

(6.) Our

(6.) Our upper Earth, the Product of the ancient *Chaos*, being in all Probability founded on a denſe Fluid or Abyſs, as will appear in the Sequel, the main Part of the Fluid of that ancient *Chaos*, muſt, by conſequence, have been ſuch a denſe and heavy one as is here mention'd. And indeed, 'tis in it ſelf but very reaſonable, if not neceſſary, to allow the inferior Parts of a fluid *Chaos* to have been compos'd of much denſer and heavier Maſſes than the ſuperior, or than Water, the main viſible Fluid of our Globe. For, if we conſider the Matter in any ſort according to the Law of ſpecifick Gravity, all heavy Fluids muſt, at leaſt, as certainly be near the Center, as like heavy Solids; and 'tis but mechanical to allow that in a confus'd Fluid *in ſome meaſure*, as well as *exactly* in a digeſted one, the Fluids contain'd in the inner Regions muſt be much heavier than thoſe at or near the outer Surface thereof. But beſides, 'twill be hard to account for the confus'd moving State of the earthy Parts, or, which is much the ſame, the Fluidity of the entire *Chaos*, without allowing a much greater Quantity of Fluids in it, than what we now ſee with us, the Waters of our preſent Earth; and thoſe of a Denſity and Gravity fit to retain their Poſts, as well nearer the central, as the ſuperficiary Parts. And that on this Account, (of the Comet's Atmoſphere's fix'd and denſe Fluid) 'tis peculiarly adapted to the aforeſaid Deſcription of the *Chaos*, is evident by what has been already obſerv'd of the ſame; to which I refer the *Reader* for Satisfaction.

Coroll. 2. *Lem.* 68. *prius.*

(7.) Whereas very many, and very conſiderable *Phænemena* of Nature, (which Dr. *Woodward* has excellently obſerv'd) as well as ancient Tradition, ſeem to require and ſuppoſe a central Fire, or

Eſſay, Part 3. Sect. 1.

or internal Heat diffuſing warm and vigorous Steams every way from the Center to the Circumference of the Earth; and whereas 'tis very difficult on the common *Hypotheſes*, or indeed on any hitherto taken notice of, to give a Mechanical and Philoſophical Solution of the ſame; If we will but allow the Propoſition we are now upon, that the Earth, in its *Chaotick* State, was a Comet, a moſt eaſy and Mechanical Account thereof is hereby given, and the *Phænomena* of Nature render'd plain and intelligible. For a Comet, beſides its thinner fluid Atmoſphere, conſiſting of a large, denſe, ſolid, ſpherical Body, [or *Loadſtone*;] and ſometimes approaching ſo near the *Sun*, that the Heat acquir'd then, though ſooner failing in the thinner and expos'd Atmoſphere, will not do ſo in the central ſolid, under very many thouſands of Years; nothing can better ſuit the Caſe of our preſent Earth, than to allow a Comet't Atmoſphere to have been her *Chaos*; and the central Body of the Comet, the Source and Origin of that central Heat, which our Earth appears ſtill to incloſe within it.

Vid. *Lem.* 68. *prius.*

However, it muſt here be obſerv'd, that altho' with ſome, we ſhould ſuppoſe all the *Phænomena* before hinted at to be accountable without any internal Heat, yet will not this diſagree with the preſent *Hypotheſis*, that the Earth was once a Comet; becauſe ſome Comets approach ſo very near the *Sun*, (as that famous one in 1680, 1681.) that their central Solids muſt be exceeding hot, and retain the ſame a long Time; and others (as that in 1664) deſcend not ſo low as the *Orbis Magnus* of the Earth, and ſo are never heated ſo much as our Earth is in Summer; and therefore tho' the Acknowledgment of a vigorous central Heat is a great Argument that the Earth was once a Comet,

met, as ſolving what is otherwiſe inſoluble, yet is not the Denial of the ſame any Argument againſt it: Becauſe it may as eaſily be ſuppos'd to have been one of thoſe whoſe central Solids would not be ſo violently heated, as one of thoſe which would have been ſo.

(8.) The Bigneſs of Comets and of their Atmoſpheres, agrees exactly with the Suppoſition we are now upon. For tho' the Atmoſpheres are 10, or perhaps 15 times in Diameter as big as the central Bodies, (which yet have been formerly obſerv'd to be near the Magnitude of the Planets) and thereby of a much larger Capacity than this Argument ſuppoſes; yet if, from that thin, rare, expanded State in which they now are, they were ſuppos'd to ſubſide or ſettle cloſe together, and immediately reſt upon the central Body; as on a Formation they muſt do; the entire Maſs would make much ſuch Bodies in Magnitude, as the Planets are: As Aſtronomers, from the Obſervations made about them, will readily confeſs. So that when, to all the other Inducements to believe theſe Atmoſpheres to be the ſame Maſſes of Bodies we call *Chaos's*, (from one of which all Antiquity, ſacred and prophane, derive the Origin of our Earth;) it appears that the Magnitude is alſo exactly correſpondent; I know not what can be alledg'd to take off or weaken the Force of them. Which general Concluſion might be confirm'd by ſome other Similitudes between them and the Planets, obſervable in the ſucceeding Theory, or probably deduc'd from their *Phænomena*; which I ſhall not at preſent inſiſt particularly upon. So that on the whole Matter, upon the Credit of the foregoing Arguments united together, and conſpiring to the ſame Concluſion; I may, I think, venture to affirm, That as far as hitherto preſent

Lem. 60, 61. *prius.*

Nature

Nature and Ancient Traditions are known; 'tis very reaſonable to believe, that a *Planet* is a *Comet* form'd into a regular and laſting Conſtitution, and plac'd at a proper Diſtance from the Sun in a *Circular* Orbit, or one very little Eccentrical; and a *Comet* is a *Chaos*, *i. e.* a *Planet* unform'd, or in its primæval State, plac'd in a very *Eccentrical* one: And I think I may fairly appeal to all that the moſt Ancient Hiſtory, or Solid Philoſophy can produce hereto relating, in Atteſtation to ſuch an Aſſertion. Eſpecially conſidering withal,

(9.) Laſtly, That there is no other Pretender, no other Maſs of Bodies now known, or ever related to have been known in the whole Syſtem of Nature, which can ſtand in Competition, or ſo much as ſeem to agree to the Deſcription of the Ancient *Chaos*, but that which is here aſſign'd and pleaded for. Now this I am ſecure of, and all will and muſt grant: They cannot but be forc'd to confeſs, that (the Atmoſphere of a Comet ſet aſide) they have no other *Idea* of the Nature and Properties of that Maſs of Bodies call'd a *Chaos*, but what prophane Tradition, with the Concurrence of the Holy Books, afford them; without any viſible Inſtance or Pattern in Nature. Which Acknowledgment, join'd to the remarkable Correſpondence of the Particulars before-mention'd; and the no Objection of any Moment, as far as I ſee to be produc'd to the contrary; is, I think, a mighty Advantage in the preſent Caſe. All that can reaſonably be requir'd farther is, that the *Phænomena* of the Earth, to be ſuperſtructed on this Foundation, and deriv'd ſucceſſively through the ſeveral Periods, to the Conſummation of all Things, prove Coincidents to this *Hypotheſis*, and confirm the ſame: Which being the Attempt

of

of the following Theory, muſt be by no means here pretended to before-hand; but left to the impartial Judgment of the Reader, when he is arriv'd at the End of his Journey, and digeſted the whole Scheme. From the entire and conjoint View whereof, and not from any Particulars by the way occaſionally reflected on, a prudent and well-grounded Sentence is to be paſs'd upon it, and upon ſeveral of the *prior* Concluſions themſelves alſo. However, ſince here is a known and viſible Foundation to depend on; and the Reader is referr'd to no other *Chaos* than what himſelf has ſeen, or, 'tis probable, may in a few Years have Opportunity of ſeeing; it muſt be at the leaſt allow'd a fair and natural Procedure, and of the Conſequences whereof every thinking and inquiſitive Perſon will be a proper Judge. The Reaſonings proceding, without begging any precarious *Hypotheſis* at firſt, of the Nature of that old Fund and Promptuary whence all was to be deriv'd, or ſending the Reader to the utmoſt Antiquity for his Notion thereof; to which yet, in the moſt authentick Accounts of the Primitive *Chaos* now extant, I fear not to appeal, and ſubmit my ſelf.

If it be objected, that becauſe Comets have no *Satellites* revolving about them, as the Earth and other of the Planets have, therefore the Planets cannot have proceeded from Comets; I anſwer, that I am not ſatisfy'd that no Comets have ſecondary Comets or *Satellites* revolving about them. I think the Obſervations we have yet made about Comets are not nice and numerous enough to determine this Point; nay rather, what the Hiſtories of many Comets relate about the various Shapes and Figures and Poſitions of many Comets, or their Tails, ſeems to be hardly accountable, unleſs we allow leſſer Comets to have now and then been

Companions to the greater, and by their various Poſitions and other Circumſtances, to have occaſion'd ſome at leaſt of that Variety and Strangeneſs in many of their *Phænomena* above-mention'd. And if it be again objected, that 'tis not probable our Earth ſhould have been once a Comet, becauſe in all paſt Hiſtory no other Comet has been obſerv'd to ſtop and become a Planet; I anſwer, That as the Earth is perfectly inconſiderable in compariſon not only of the Univerſe, but alſo of the *Solar Syſtem*; ſo I believe is 6000 or 7000 Years, the Period I ſuppoſe of its Duration; much more about 2000 Years, the almoſt utmoſt Reach of our Aſtronomical Hiſtories, to the Duration of the whole Syſtem. Worlds, 'tis probable, are not form'd every Age, nor perhaps every hundredth, or thouſandth Age neither.

II. The Mountainous Columns of the Earth are not ſo denſe or heavy as the other Columns.

This Propoſition will alſo, I imagine, be new and unexpected to very many; but I hope the following Arguments, which I ſhall very briefly propoſe, will prove it to be no unreaſonable or precarious one.

(1.) Mountains, ſo far as we can penetrate into them, [at leaſt if ever we do penetrate into the true Antediluvian Mountains themſelves; which is alſo to be ſuppos'd in ſome other Arguments] are uſually ſtony and rocky, and by conſequence lighter than the main Body of the Earth. For tho' Stone be ſomewhat heavier than the uppermoſt *Stratum* or *Garden Mould*, as ſome ſtile it; yet 'tis conſiderably lighter than that beneath the ſame. For if we compare its Weight with that in the

the Bottom of our Mines, which is alone conſiderable to our Purpoſe, (our upper *Strata*, as will hereafter appear, being generally factitious, or acquir'd at the Univerſal Deluge) we ſhall be forc'd to own the Neceſſity of the Conſequence of the preſent Argument. The Specifick Gravity of Stone is to that of Water, as 14 to $5\frac{1}{3}$, but the Specifick Gravity of the Earth at the Bottom of our Mines is to that of Water as 3 to 1, ſometimes as 4 to 1, nay, ſometimes almoſt as 5 to 1, and therefore to be ſure conſiderably denſer and heavier than Stone: So that were the Mountainous Columns of the Earth entirely made up of Stone, they would (without the Conſideration of thoſe empty Caverns they encloſe) be plainly the lighteſt Parts of the whole Earth. *Newt. p.* 417.

(2.) Thoſe very denſe and heavy Corpuſcles of Gold, Lead, Silver, and other ſuch like Metals and Minerals, are moſtly, if not only, found in the Bowels of Mountains. Now, ſince the Gravity of theſe Bodies is ſo great, that in a regular Formation they ought to have ſeated themſelves, one would think, much nearer the Center than they now are; to account for ſuch their Poſition, it muſt be ſuppos'd, that the Columns under them, and the Earth among them, were lighter and rarer than the neighbouring Columns did afford; that upon the whole, the entire *Compoſitum* or Maſs taken together, may be allow'd to be, if not lighter, yet, at leaſt, not heavier than that of any other Column. So that by a juſt, tho' a little ſurprizing way of Reaſoning, from the greater ſpecifick Gravity of ſome Parts of the Mountainous Columns, the leſs ſpecifick Gravity of the whole is inferr'd.

(3.) Mountains are the principal Source and Origin of Springs and Fountains. Now Dr. *Wood-* Eſſay, Part 3.

ward, from his own Obſervations, aſſerts, That theſe are neither wholly deriv'd from Vapours condens'd in the Air at the Tops of Mountains, nor from mere Rains, or Fall of Moiſture, as ſeveral have differently aſſerted; but from the Waters in the Bowels of the Earth; and that 'tis a Steam or Vapour rais'd by the ſubterraneous Heat which affords no ſmall Part of their Waters to them. On which Hypotheſis, which I take to be the trueſt and moſt rational of all others, the Vapours appear to have a more free and open Vent or Current up the Mountainous Columns, than the neighbouring ones; and conſequently, they are more rare, lax, and porous, or leſs denſe and weighty than the others.

(4.) All *Volcano's*, or ſubterraneous Fires, are in the Bowels of ſome Mountain, to which a Plain or a Valley was never known to be liable. Which Obſervation affords a double Argument for ſuch a Levity and Rareneſs as we are now contending for; the one, from the Temper of an inflammable Earth, Sulphurous and Bituminous; which being in part made up of oily Particles, the lighteſt Fluid we have, muſt in likelihood be the lighteſt of all *Strata* whatſoever; the other, from the free Admiſſion of Air into the Bowels of theſe Mountains; without which no Fire or Flame can be preſerv'd; which alſo infers ſuch a Poroſity or Laxneſs as we are now concern'd to prove.

(5.) Mountainous Countries are chiefly ſubject to Earthquakes, and conſequently are as well Sulphurous and Inflammable, as Hollow and Cavernous, Looſe and Spungy in their inward Parts; without which Properties the *Phænomena* of Earthquakes were difficultly accountable: eſpecially according to Dr. *Woodward*'s *Hypotheſis* of them; who deriving them from Steams of ſubterraneous

Eſſay. *p.* 134. *&c.*

Heat

Heat aſcending from the Central Parts, and collected in great Quantities together, muſt by conſequence own that the Bowels of Mountains, ſo commonly ſubject to Earthquakes, are moſt Pervious, Porous, and Cavernous of all other. All which Arguments, eſpecially taken together with ſome other Coincidents hereafter obſervable, will, I hope, be eſteem'd no inconſiderable Evidence of the Truth of the Propoſition we are now upon.

III. Though the *Annual Motion* of the Earth commenc'd at the Beginning of the *Moſaick* Creation; yet its *Diurnal Rotation* did not till after the Fall of Man.

Tho' I cannot but expect that this will appear the greateſt *Paradox*, and moſt extravagant Aſſertion of all other, to not a few Readers; yet I hope to give ſo great Evidence for the ſame from Sacred as well as Prophane Authority, that competent and impartial Judges ſhall ſee Reaſon to ſay, that if it be not ſufficient to force their Aſſent, yet 'tis ſuch as they did not expect in ſo ſurprizing, remote, and difficult a Caſe; the Records relating to which (the Sacred Ones excepted) are ſo few, and ſo dubious; and the conſtant Opinion of the World, within the Memory of Hiſtory, ſo fix'd and ſettled on the contrary Side. Let it only be, by way of Preparation, remark'd, that the Annual and Diurnal Motions are in themſelves wholly independent on each other, as was before obſerved; and conſequently, that 'tis as rational to ſuppoſe the former without the latter, if there be Evidence for the ſame, in the Original State of Nature, as 'tis to believe them capable of being *Lem.* 69. *priùs.*

conjoin'd, from the known *Phænomena* of the World, in the preſent State. Let it alſo be obſerv'd, that there is yet no Evidence that either the central Bodies of any of the Comets, or that even ſome of the Planets, which undoubtedly have an Annual Motion about the Sun, have yet any Diurnal Rotation about *Axes* of their own. And let it, laſtly, be conſider'd, That ſince the Diurnal Rotation muſt have an Original, a Time when it began; that Time may as rationally and naturally be ſuppos'd after the Fall, as before the Creation, or ſix Days Work; and which was the true and real one, muſt be determin'd by the Teſtimonies of Antiquity, or other collateral Arguments, to be from thence, or from the *Phænomena* of Nature, ancient or modern, deriv'd and inferr'd. Which Things being ſuppos'd, I ſhall thus attempt to prove the preſent Aſſertion.

(I.) If the primitive State of Nature before the Fall, had thoſe peculiar *Phænomena* or Characters which certainly belong to a Planet before its Diurnal Rotation begun; and are as certainly impoſſible in the preſent State of the Earth revolving about its own *Axis*; 'tis plain the Aſſertion before us is true and real: But that thoſe peculiar *Phænomena* or Characters did belong to that primitive State, the Teſtimonies of Sacred and Prophane Antiquity, to be preſently produc'd, do make appear; and, by conſequence, the Aſſertion before us is true and real.

(II.) I ſhall ſhew, that the preſent *Phænomena* of the Earth do prove that its Diurnal Motion did not commence till ſome Time after its Annual, and by conſequence, in all Probability, not till after the Fall of Man.

(III.) I ſhall aſſign the probable Mechanical Cauſe of this Commencement of the Diurnal Motion,

tion, after its Annual had continued ſome Time; and ſhew, that that Cauſe alſo is agreeable to the preſent *Phænomena* of Nature, and of the Earth.

As to the firſt way of Proof, the *Phænomena* or peculiar diſtinguiſhing Characters here intended, have been already mention'd; and are theſe five. (1.) A Day and a Year were all one. (2.) The Sun and Planets roſe in the *Weſt*, and ſet in the *Eaſt*. (3.) There was through the whole Earth a perpetual *Equinox*. (4.) The Ecliptick and Equator were all one; or rather, the latter was not in Being, but all the Heavenly Motions were perform'd about the ſame invariable *Axis*, that of the former. (5.) To ſuch as liv'd near the Ecliptick, the Poles of the ſame (or of the World, they being then not different) were neither conſiderably elevated nor depreſs'd, but at or near the Horizon. Theſe are the certain and undeniable Characters of ſuch a State: And that they belong'd to the primitive State of our Earth before the Fall, I am now to prove. *Lem.* 73. *prius.*

(1.) In the primitive State of the World, Days and Years were all one. Which Aſſertion I endeavour to evince by the following Arguments. (1.) On this *Hypotheſis*, the Letter of *Moſes* is as exactly follow'd as in the contrary one. 'Tis agreed that *Moſes* calls the ſeveral Revolutions of the Sun, in which the Creation was perfected, *Days*, every where in that Hiſtory. Now as a *Year* is properly the Succeſſion of the four ſeveral Seaſons, Spring, Summer, Autumn and Winter, ariſing from *one ſingle* Revolution of the Earth about the Sun; ſo a *Day* is the Succeſſion of Light and Darkneſs *once*; or the Space of *one ſingle* apparent Revolution of the Sun from any certain Semimeridian, above or below the Horizon, till its Return thither again. Now, in the Caſe before us, both theſe Periods

are exactly coincident; and both are perform'd in the ſame Space of Time: Which Space therefore, in equal Propriety of Speech, belongs to either, or both thoſe Names indifferently; and, by conſequence, may with the exacteſt Truth and Propriety be ſtil'd a *Day* or a *Year*. Which Thing duly conſider'd, if I had no poſitive Evidence for the Propoſition before us, yet, ſetting aſide Prepoſſeſſion, I had an equal Right and Pretence to Truth with the common Expoſitors; I keeping equally cloſe to the Letter of the Sacred Hiſtory. (2.) This *Hypotheſis* gives a rational Account of the Scripture Stile, wherein a *Day*, even in after-Ages, very frequently denotes a *Year*; as is commonly taken notice of by Expoſitors. Thus by *Moſes* himſelf, the word *Day* is not only, in the very Recapitulation of the Creation, us'd for the entire *Six*:

Gen. ii. 4, 5. (*Theſe are the generations of the heavens and the earth when they were created, in the Day that the Lord God made the earth and the heavens, and every plant of the field before it was in the earth, and every herb of the field before it grew.*) But, in other Places, as it ſeems, for the Space of a *Year*.

Cap. iv. 3. *And at the end of Days*, or after ſome *Years*, *it came to paſs that Cain brought of the fruit of the*

C. v. 4, 5. *ground an offering unto the Lord. The Days of Adam, after he had begotten Seth, were eight hundred Years. And all the days that Adam lived were nine hundred and thirty years, and he died.* And ſo of the reſt of the Genealogies in that Chapter.

Jud. xvii. 10. Thus in others of the holy Writers: *I will give thee ten ſhekels of ſilver by the days*, i.e. *per annos*, by the *years*, or every *year*. The like Phraſes we

2 Sam. ii. 11. have of *David*: *The number of days that David was king in Hebron, over the houſe of Judah, was*

1 Kings ii. 11. *ſeven years and ſix months. The days that David reigned over Iſrael, were forty years.* So, what was

Deut. xiv. 28. in the Law, *Bring your tythes after three years*, is

in

in the Prophet, *Bring your Tythes after three days.* Amos iv. 4. Thus, 'tis not a little remarkable, that what in the *Hebrew* is, *It came to paſs in proceſs of time,* 2 Chron. xxi. 19. *at the end of two days, Jeboram's bowels fell out, by reaſon of his ſickneſs*; appear'd to be ſo plainly meant of ſo many Years, that our Tranſlators not only render it ſo, but do not ſo much as put the original Reading into the Margin, as in ſuch Caſes they uſually do. Which ways of ſpeaking, with others that follow, may ſeem alluded to, and explain'd by theſe two, tho' themſelves ſomewhat of a different Nature. *Your Children,* Num. xiv. ſays God to the *Iſraelites, ſhall wander in the wil-* 33, 34. *derneſs forty years; after the number of the days in which ye ſearched the land, even forty days, each day for a year, ſhall you bear your iniquities, even forty years.* *Lye thou,* ſays God to the Prophet Ezek. iv. *Ezekiel, on thy left ſide, and lay the iniquity of* 4, 5, 6. *the houſe of Iſrael upon it; according to the number of the Days that thou ſhalt lye upon it, thou ſhalt bear their iniquity: For I have laid upon thee the years of their iniquity, according to the number of the days, three hundred and ninety Days; ſo ſhalt thou bear the iniquity of the houſe of Iſrael. And when thou haſt accompliſhed them, lye again on thy right ſide; and thou ſhalt bear the iniquity of the houſe of Judah forty Days; I have appointed thee a day for a year.* But what I mainly and principally intend here, is, that known, frequent, and ſolemn way in the Prophetick Writings of determining *Years* by *Days*; being indeed the conſtant Method in all the Prophecies belonging to the Chriſtian Church; the Inſtances of which are very obvious; ſome whereof I ſhall here barely quote for the Reader's Satisfaction; (and more in a Caſe ſo notorious and remarkable, need not here be done.) *How long ſhall be the viſion concerning the* Dan. viii. *daily* 13, 14.

daily ſacrifice, and the tranſgreſſion of deſolation, to give both the ſanctuary and the hoſt to be trodden under foot? And he ſaid unto me, Unto two thouſand three hundred evening mornings (or ſuch *days* as were referr'd to in the Hiſtory of the Creation,)

Chap. xii. 11, 12, 13. *then ſhall the ſanctuary be cleanſed. From the time that the daily ſacrifice ſhall be taken away, and the abomination that maketh deſolate be ſet up, there ſhall be one thouſand two hundred and ninety days. Bleſſed is he that waiteth, and cometh to the one thouſand three hundred five and thirty days. But go thou thy way till the end be; for thou ſhalt reſt,*

Apoc. xi. 3. *and ſtand in thy lot at the end of the days. I will give power unto my two witneſſes, and they ſhall propheſy one thouſand two hundred and ſixty days,*

Chap. xii. 6. *cloathed in ſackcloth. The woman fled into the wilderneſs, where ſhe hath a place prepared her of God, that they ſhould feed her there, one thouſand two hundred and ſixty days.* Agreeably whereto, a *Week*, conſiſting of *ſeven Days*, denotes *ſeven Years*; and a *Month*, conſiſting of *thirty Days*, denotes *thirty Years*, in the ſame Prophetick Writings. Thus, in that moſt famous of all Prophe-

Dan. ix. 24, 25, 26. cies, concerning the Death of the *Meſſias*: *Seventy weeks are determined upon thy people, and upon thy holy city; to finiſh the tranſgreſſion, and to make an end of ſins, and to make reconciliation for iniquity, and to bring in everlaſting righteouſneſs, and to ſeal up the viſion and prophecy, and to anoint the moſt holy. Know therefore, and underſtand, that from the going forth of the commandment to reſtore and build Jeruſalem, unto the Meſſiah the Prince, ſhall be ſeven weeks, and ſixty and two weeks; the ſtreet ſhall be built again, and the wall, even in a ſtraight of times. And after the ſixty and two weeks ſhall Meſſiah be cut off: but*

Apoc. xi. 2. *not for himſelf. The holy city ſhall they tread under foot*

foot forty and two months. Power was given to the Beaſt to continue forty and two months. All which Expreſſions, with others of the ſame Nature, are not accountable; I mean, there is no ſatisfactory Reaſon can be given, why a *Day* ſhould ſo frequently denote a *Year* in the Sacred Writings, on any other *Hypotheſis*. We uſually, indeed, content our ſelves in theſe Caſes with the bare knowing the Meaning of Scripture Expreſſions, as if they were choſen at a Venture: And ſo, for inſtance, finding a *Day* to repreſent a *Year* in the ſame Books, we reſt ſatisfied, without enquiring why a *Day*, rather than an *Hour*, a *Week*, or *Month*, (the two latter of which Terms are yet us'd by theſe Authors) were pitch'd upon to ſignify the before-mention'd Space to us; or why, if the word *Day* muſt be made uſe of, it muſt mean a determinate juſt *Year*, rather than a *Week*, or a *Month*, ſo frequently in the Sacred, eſpecially in the Prophetick Writings. But 'tis very ſuppoſable, that 'tis our Ignorance or Unskilfulneſs in the Stile of Scripture, and thoſe Things therein delivered, (not the Inaccuracy of the Writers themſelves) which occaſions our lax and general Interpretations. It will ſure at leaſt be allow'd me, that whereever not only the Meaning of Phraſes, but the Original and Foundation of ſuch their Meaning, is naturally and eaſily aſſignable, an Account thereof is readily to be embrac'd. And certainly the primitive *Years* of the World being once ſuppos'd to have been *Days* alſo; and call'd by that Name in the Hiſtory of the Creation, this Matter will be very eaſy; the ſucceeding Stile of Scripture will appear only a Continuation of the primitive; and fitted to hint to us a Time wherein a *Day* and a *Year* were really the ſame: And Chap. xiii. 5.

this without any Diminution of the true Deſigns of the Prophetick Numbers; I mean the involving their Predictions in ſo much, and no more Obſcurity, as might conceal their Meaning till their Completion, or till ſuch Time at leaſt as the Divine Wiſdom thought moſt proper for their Manifeſtation in ſucceeding Ages. So that this Argument demonſtrates the preſent Expoſition to afford a natural Foundation of accounting for ſuch ways of ſpeaking in the Holy Scriptures, which otherwiſe are, as to their Occaſion and Original, unaccountable; and conſequently, proves it to be as truly agreeable to the *Stile*, as the former did to the *Letter* of the Sacred Writings. (3.) The ſix *Days* of Creation, and the ſeventh of Reſt, were, by Divine Command, to be in after-Ages commemorated by *Years*, as well as by *Days*; and ſo in Reaſon anſwer'd alike to both thoſe Denominations. 'Tis evident, that the Works of the Creation were compleated in ſix *Evenings* and *Mornings*, or ſix Revolutions of the Sun, call'd *Days*; and that the ſeventh was immediately ſet apart and ſanctified as a *Day* of Reſt, and Memorial of the Creation juſt before compleated: And 'tis evident that this Sanctification of the ſeventh, as well as the Operations of the ſix foregoing, belong'd to the primitive State of the World before the Fall. Now that we may know what Sort of *Days* theſe were, 'twill be proper to enquire into the enſuing Times; and obſerve, after the Diſtinction of *Days* and *Years* undoubtedly obtain'd, what conſtant Revolutions of ſix for Work, and a ſeventh for Reſt there appear; or in what Manner, and by what Spaces, theſe Original ones were commemorated; which will go a great way to clear the Point we are upon. And here, 'tis evident, that when God gave Laws to

Gen. ii. 1, 2, 3.

the

the *Iſraelites*, he allow'd them ſix ordinary *Days* of Work, and ordain'd the ſeventh for a *Day* of Reſt or Sabbath; in Imitation and Memory of his Working the firſt ſix, and Reſting or keeping a Sabbath on the ſeventh *Day*, at the Creation of the World. This the Fourth Commandment ſo expreſly aſſerts, that 'tis paſt Poſſibility of Queſtion. 'Tis moreover evident, that God, upon the Children of *Iſrael*'s coming into the Land of *Canaan*, ordained, (with Reference, as 'tis reaſonable to ſuppoſe, to the ſame primitive State of the World, the ſix Days of Creation and the Sabbath,) *That ſix Years they ſhould ſow their fields, and ſix Years they ſhould prune their vineyards, and gather in the fruits thereof; but in the ſeventh Year ſhould be a Sabbath of Reſt unto the land, a Sabbath for the Lord.* They were neither to *ſow their Field, nor prune their Vineyard. Then was the land to keep a Sabbath unto the Lord.* So that if we can juſtly preſume that the primary Spaces of the World, here referr'd to, were proper *Evenings* and *Mornings*, or Natural *Days*, becauſe they were repreſented and commemorated by ſix proper and natural *Days* of Work, and the ſeventh of Reſt; I think 'tis not unreaſonable to conclude they were proper and natural *Years* alſo; conſidering they appear to have been among the ſame People, by the ſame Divine Appointment, repreſented and commemorated by theſe ſix proper and natural *Years* of Work, and the ſeventh of Reſt alſo. Nay, if there be any Advantage on the ſide of natural *Days*, from the Expreſſneſs of the Reference they had to the Primitive ones, (which the Fourth Commandment forces us to acknowledge,) there will appear in what follows ſomewhat that may juſtly be eſteem'd favourable on the ſide of *Years*. Beſides the ſix *Days* for Work, and the ſe-

Lev. xxv. 3, 4.

Ver. 2. *Vid.* Deut. xv.

ſeventh for Reſt, the *Jews* were commanded (on the ſame Account, as we may juſtly ſuppoſe)
Lev.xxiii. 15,--21. *to number from the Paſſover ſeven times ſeven Days*, or ſeven Weeks of *Days*, and at the Concluſion of them to obſerve a ſolemn Feaſt, call'd the Feaſt of Weeks or of Sabbaths, once every Year. In like manner, beſides the *Yearly* Sabbath, as I may call it, or the ſeventh *Year* of Reſt and Releaſe after the ſix *Years* of Work, the *Jews* were commanded (on the ſame Account, as
Chap. xxv.8,-16. we may juſtly ſuppoſe,) *to number ſeven Sabbaths of Years, ſeven times ſeven Years*; and at the Concluſion thereof to celebrate the great *Sabbatical Year*, the *Year of Jubilee: They were neither to ſow, nor reap, nor gather in the grapes*; *but eſteem it holy, and ſuffer every one to return to his Poſſeſſions again.* Where that which is remarkable is this; That tho' the *Sabbatical Days*, and *Sabbatical Years*, equally return'd by perpetual Revolutions immediately ſucceeding one another; yet the Caſe was not the ſame as to the *Feaſt of Weeks* at the End of ſeven times ſeven *Days*; that following the Paſſover, and not returning till the next Paſſover again, and ſo was but once a Year: Whereas its correſponding Solemnities, the *Jubilees* or great *Sabbatical Years*, at the End of ſeven times ſeven Years, were as the former, to return by perpetual Revolutions immediately ſucceeding one another for all future Generations. All which duly conſider'd, I think upon the whole, 'tis but reaſonable to conclude, That ſeeing the primitive Spaces, or Periods of Work and Reſt, appear by Divine Appointment, to have been commemorated among the *Jews* by *Years* as well as by *Days*, the ſame primitive Spaces or Periods were equally *Days* and *Years* alſo. (4.) The Works of the Crea-

Creation, by the Sacred Hiſtory, concurring with Ancient Tradition, appear to have been leiſurely, regular, and gradual, without any Precipitancy or Acceleration, by a miraculous Hand on every Occaſion: Which is impoſſible to be ſuppos'd in thoſe *Days* of twenty four ſhort Hours only; but if they were as long as the preſent *Hypotheſis* ſuppoſes, they were truly agreeable and proportionable to the ſame Productions. Which Conſequence will be ſo eaſily allow'd me, that I may venture to ſay, That as certain as is the regular and gentle, the natural and leiſurely Procedure of the Works of the Creation, (of which I know no good Reaſon, from any Warrant ſacred or prophane, to make any queſtion;) ſo certain is the Propoſition we are now upon, or ſo certainly the primitive *Days* and *Years* were all one. (5.) Two ſuch Works are by *Moſes* aſcribed to the third *Day*, which (if that were not longer than one of ours now,) are inconceivable and incompatible. On the former Part of this *Day*, the Waters of the Globe were to be drain'd off all the dry Lands into the Seas; and on the ſame *Day* afterward, all the Plants and Vegetables were to ſpring out of the Earth. Now the Velocity of running Waters is not ſo great, as in a Part of one of our ſhort *Days*, to deſcend from the middle Regions of the dry Land into the Seas adjoining to them; nor if it were, could the Land be dry enough in an Inſtant for the Production of all thoſe Plants and Vegetables, which yet we are aſſur'd appear'd the ſame *Day* upon the Face of it; which Difficulties vaniſh, if we allow the primitive *Days* to have been *Years* alſo; as will more fully be made appear in due Place. (6.) Whatever might poſſibly be ſaid of the other *Days* Works, by recurring to the Divine Miraculous Power; (which

Gen. i. 9,--13.

(which yet is here not only unneceſſarily, and without Warrant from the Sacred Hiſtory it ſelf, but ſometimes very *indecently* done) yet the numerous Works aſcrib'd to the ſixth *Day* plainly ſhew, That a Space much longer than what we now call a *Day*, muſt have been referr'd to in the Sacred Hiſtory. The Buſineſs of the ſixth *Day* includes evidently theſe following Particulars. (1.) The Production of all the brute dry-land Animals. (2.) The Conſultation about, and the actual Creation of the Body, and Infuſion of the Soul of *Adam*. (3.) The Charter or Donation of Dominion over all Creatures, beſtow'd on *Adam*. (4.) The Exerciſe of Part of that Dominion, or the giving Names to all the dry-land Animals: Which ſure ſuppos'd ſome acquir'd Knowledge in *Adam*, ſome Conſideration of the Nature of each Species, ſome Skill in Language, and the Uſe of Words; and withal, ſome proportionable *Time* for the gathering ſo great a Number of Creatures together, and for the diſtinct Naming of every one. (5.) When on this Review it appear'd, that among all theſe Creatures there was not a Meet-help, or ſuitable Companion for him; God then caſt him into a *deep Sleep*, (which 'tis probable laſted more than a few Minutes, to deſerve that Appellation;) *took out one of his Ribs, cloſed up the Fleſh inſtead thereof, and out of that Rib made the Woman.* (6.) After this, God brings this Woman to *Adam*; he owns her Original, gives her an agreeable Name, takes her to Wife, and they together receive that Benediction, *Increaſe and Multiply*. (7.) God appoints them, and their Fellow-Animals, the Vegetables for Food and Suſtenance. All which (to omit the *Jews* Tradition of the Fall of Man this ſixth *Day*, and ſuch Things preſuppos'd thereto which muſt belong to it, even by the *Moſaick* Hiſtory

Gen. i. & ii.

Vid. *Biſhop* Patrick *on* Gen. in initio. Gen. ii. 4, &c.

ſtory it ſelf) put together, is vaſtly more than is conceivable in the ſhort Space of one ſingle Day, in the vulgar Senſe of it. 'Tis true, *God Almighty can* do all Things in what Portions of Time he pleaſes. But 'tis alſo true, (as Biſhop *Patrick* well obſerves in a like Caſe) that *Man cannot*. He muſt have Time allotted him, in Proportion to the Buſineſs to be done, or elſe 'tis not to be expected of him. And 'tis plain, That *Adam* and *Eve* were mainly concern'd in the latter Actions of this *Day*: So that by a juſt and neceſſary Conſequence, That *Day* in which *they* went through ſo many and different Scenes, and perform'd ſo many Actions, requiring at leaſt no ſmall Part of a *Year*; and that after themſelves and all the dry-land Animals had been on the ſame *Day* produc'd, was certainly ſuch a *Day* as might be proportionate to ſuch Operations, and not ſhorter than a *Year*, which the preſent *Hypotheſis* allows in the Caſe. (7.) If the Hiſtory of the Fall of Man be either included in the ſixth *Day*, according to the Ancient Tradition of the *Jews*, which I confeſs to be very improbable; or belong to the ſeventh, as might, by coming as near as poſſible to ſuch old Tradition, more probably be allow'd: On either of theſe Suppoſitions, there is the greateſt Neceſſity imaginable of ſuppoſing ſuch a *Day* much longer than is commonly done. Which, I think, is of it ſelf ſo plain, that I need not aggravate the Matter, but leave it to the free Conſideration of the Reader. (8.) A Day is, I think, no where in the whole Bible expreſs'd by Evening-Mornings [Νυχθήμερα] but in this Hiſtory of the *Moſaick* Creation, and in one of the Predictions of *Daniel*; where a famous Viſion is ſtil'd the *Evening-Morning Viſion*. Now it having been elſewhere prov'd, that there the *Day* or *Evening-Morning* denotes a *Year*, it will

On Gen. iii. init.

Eſſay on the Revelation, Lem. 1.

will be thence very probable, that in the *Moſaick* Creation, whoſe Phraſe is imitated and referr'd to there, it muſt ſignify the ſame Thing, and be in like manner underſtood of a Year alſo. (9.) To all theſe Arguments from Scripture and the Nature of Things, let me add one very ſurprizing Teſtimony of Antiquity to the ſame Purpoſe, which a Friend of mine ſince the firſt Edition ſuggeſted to me; namely, that of *Empedocles* in *Plutarch*; which coming unexpectedly ſo entirely home to our Point, and ſo exactly determining the Time when the Day was of this extraordinary Length, namely, at the firſt Origination of Mankind; may be look'd upon as decretory in the preſent Caſe; and 'tis this: Ἐμπεδόκλης ὅτε ἐγίνατο τὸ ἀνθρώπων γένος ἐκ τῆς γῆς, τοσοῦτον χρόνον τὸ μῆκος τὴν ἡμέραν, διὰ τὸ βραδυπορεῖν τὸν ἥλιον, τῶν νῦν ὄντων δέκα μηνῶν. *'Twas the Doctrine of* Empedocles, *that when Mankind ſprang originally from the Earth, the Length of the Day, by reaſon of the Slowneſs of the Sun's Motion, was equal to ten of our preſent Months.* Which if we allow to refer to the *Day-time* alone, I mean the Space of the Sun's being above the *Horizon*, which is a common Acceptation of the word *Day*; accords ſo exactly with my *Hypotheſis*, as will hereafter appear, that nothing can do more ſo; and renders all other additional Reaſonings leſs neceſſary. In fine, All theſe Arguments to me appear very ſatisfactory, and evince, that the firſt diſtinguiſhing and peculiar Character of ſuch a primitive State of Nature as was before mention'd, did really belong to our Earth before the Fall, and that then a *Day* and a *Year* were exactly one and the ſame Space of Time.

Plut. de Placit. Philoſ. l. 5. c. 18.

(2.) In the primitive State of the World, the *Sun* and *Planets* roſe in the *Weſt*, and ſet in the *Eaſt*, contrary to what they have done ever ſince.

This

This may ſeem to have been the Foundation of that Story in *Herodotus*, who tells us, That the *Sun*, in the Space of 11,340 Years, four times inverted his Courſe, and roſe in the *Weſt*. But what I mainly depend on, is that Diſcourſe in *Plato*, who relating ſome very *ancient Traditions* (as he expreſly ſays they are, and deliver'd by our firſt Parents to their Poſterity) about the primitive State of Things, and what a mighty and remarkable Change was effected by a certain mighty and remarkable Alteration in the Heavenly Motions, (which Alteration in general deſerves alſo to be taken notice of, as agreeing ſo well with the preſent *Hypotheſis*) the moſt ſurprizing, and of the greateſt Conſequence of all others, and the Cauſe of ſuitably ſurprizing and conſiderable Effects in the preſent State of Nature, makes it to be this Change of the Way or Courſe of the Heavenly Bodies, which is the Conſequence of the preſent Aſſertion. For the grand Thing, of which he had ſpoken ſo highly, is this; Ἔστι γὰρ ἓν δὴ τοῦτ' αὐτὸ, Τὸ πολὺ τοῦ παντὸς φορᾷ ἰὸν, τοτὲ μὲν, ἐφ' ἃ νῦν κυκλεῖται, φέρεται, τοτὲ δ' ἐπὶ τἀναντία. *The Motion of the Univerſe ſometimes revolves the ſame way that it does now, and ſometimes the contrary way.* And again, Ἀλλὰ τὸ περὶ τῆς μεταβολῆς δύσεως καὶ ἀνατολῆς ἡλίου καὶ τῶν ἄλλων ἄστρων· ὡς ἄρα ὅθεν ἀνατέλλει νῦν, εἰς τοῦτον τότε τὸν τόπον ἐδύετο, ἀνέτελλε δ' ἐκ τοῦ ἐναντίου. Τότε δὴ μεταβαλὼν ὁ Θεὸς αὐτὸ ὅπερ τὸ νῦν σχῆμα. *But I am now about to ſpeak of the Change made in the Riſing and Setting of the Sun, and the other Stars; namely, how they did formerly ſet in the ſame Place where they now riſe, and roſe where they now ſet; and how God chang'd their Courſe for that which they have at preſent.* Τὸ γὰρ πᾶν τότε μὲν αὐτὸς ὁ Θεὸς ξυμπολιτεύων πορευόμενον καὶ συγκυκλεῖ· τοτὲ δ' ἀνῆκεν, ὅταν αἱ περιόδοι τοῦ μετρίου μέτρον εἰλήφασιν ἤδη χρόνου. Τὸ δὴ,

Lib. 2. c. 142.

Plat. Polit. p. 175. E. F.

Plat. Polit. p. 175. B.

Ib. p. 174. F.

Ib. G. H.

πάλιν ἀυτόμαϛον, εἰς τἀναντία φερόμενϕ. *For ſometimes God himſelf directs the Motions of the Univerſe, and at other times, after ſo many periodical Revolutions as he ſees fitting, he leaves it; whereupon it is, as it were, ſpontaneouſly carried about by a Motion contrary* P. 175. C. *to the former.* Τάυτῃ τῇ μεταβολῇ μεγίϛῃ δεῖ τῆϛ θεὶ τ ἐϛαναὸν γιγνομένων ζῴων παϛῶν εἶ μεγίϛην κ τελειοτάτῃ ζῴων. *And this change ought to be accounted the greateſt and moſt entire of any the heavenly Bodies undergo.* Theſe Teſtimonies are ſo very plain, and full to our preſent Purpoſe, that plainer cannot eaſily be imagined. And by the other *Phænomena* of the Original State of the World before the Fall, enumerated by *Plato* in this Place, and to be accounted for in the following Theoty, the *Time* alſo of this great Change of the Heavenly Motions, is determin'd beyond all Contradiction, agreeably to the preſent *Hypotheſis*.

(3.) In the primitive State of Nature there was a perpetual *Equinox*, or Equality of Day and Night through the World. This *Phænomenon*, or ſuch Effects as in part ſuppoſe it, is uſually by the Chriſtian Fathers apply'd to the Paradiſiacal State; and by the ancient Heathens to the Golden Age, or the Reign of *Saturn*: (coincident, 'tis probable, at leaſt in part, therewith;) for they all with one Conſent deny, that the *Sun*'s Courſe was oblique from one Tropick to another, or that the Difference and Inequality of Seaſons, which muſt have followed therefrom, did belong to that firſt and moſt happy State of the World; as may at large be ſeen in the Places quoted in the Margin, too long here to tranſcribe; to which therefore I refer the *Reader*, and proceed.

Burnet. Theor. l. 2. c. 1. & 10. *Archæol.* l. 2. c. 5. & 6.

(4.) In the primitive State of the World, there was no Equator diſtinct from the Ecliptick; all Motions were perform'd about one invariable *Axis*,

Axis, that of the latter; (for the Planes of the Planets Orbits, I conſider as nearly coincident with that of the Ecliptick,) without the Obliquity of one Circle or Motion to another. Tho' this be ſomewhat related to the former Particular, yet I ſhall diſtinctly quote a Teſtimony or two directly belonging hereto, and not ſo properly reducible to the other. The firſt is that of *Anaxagoras*, who ſays, Τὰ δ' ἄστρα κατ' ἀρχὰς ὑπ' ὀλοειδῶς ἐνεχθῆναι, ὥστε κατὰ κορυφὴν τῆς γῆς τὸν ἀεὶ φαινόμενον πόλον. That *the Stars in their primitive State revolv'd in a Tholiform manner, inſomuch, that the Viſible Pole was perpetually at the* Vertex *of the Earth.* Whoſe Meaning, tho' ſomewhat obſcure, ſeems to be, That the Motion of the Heavens was originally about one Center or *Axis*, that of the Ecliptick, whoſe Pole was continually over-againſt the ſame Point of the Earth; which on the *Hypotheſis* before us is true, but in the preſent Frame of Nature impoſſible. The next Author, whom I ſhall produce, is *Plato*; who, in the forementioned famous Diſcourſe about the Ancient and Modern States of the World, ſays, That in the former of them, the Motion of the Heavens was uniform; which Thing was the Cauſe and Original of the Golden Age, and of all that Happineſs which therein Mankind enjoy'd, or external Nature partook of; which, how well it ſuits the preſent *Hypotheſis*, I need not ſay. All that exceeding happy State of Nature, which innocent Man enjoy'd, beyond what he does ſince the Fall, being therein owing to ſuch a Conſtitution of the World as this Author intimates, and I am now proving. Which, in the laſt Place, ſhall be confirm'd from *Baptiſta Mantuanus*, who ſays, (relating the Opinion of the old Aſtronomers,) All the Celeſtial Spheres were in the Be-

Laertius, Lib. II. Segm. 9.

Plat. Politic. p. 175, &c.

Archæol. p. 273.

ginning of the World concentrical and uniform in their Motion; and the *Zodiack* of the *Primum Mobile*, and that of the Planets (the Equator and Ecliptick) were united and coincident, by which means, all ſublunary Bodies were more vivid and vigorous at that Time, than in the preſent Ages of the World; as the *Theoriſt* ſums up the Force of his Teſtimony, very agreeably to the *Hypotheſis* before us, of the Aſtronomy in the primitive State of the Heavens.

(5.) To the firſt Inhabitants of the Earth, (dwelling near the Interſection of the ancient Ecliptick, with the preſent *Northern* Tropick; of which hereafter;) the Poles of the World were neither conſiderably elevated nor depreſs'd, but near the Horizon. But ſome Time after the Formation of Things, they ſuddenly chang'd their Situation; the *Northern* Pole appear'd to be elevated above, and the *Southern* depreſs'd below the Horizon; and the Courſe of the Heavens ſeem'd bent or inclin'd to the *Southern* Parts of the World; or, in plain words, there was a new Diurnal Rotation begun about the preſent *Axis* of the Earth; which I take to be the true and eaſy Expoſition of the ſame *Phænomena*. This Matter is much inſiſted on by the Ancients, and being ſo, will fully confirm our Aſſertion, and give Light and Strength to ſome of the former Teſtimonies. *Plutarch* has a Chapter entituled, Περὶ Ἐκλίσεως Γῆς, Of the Inclination of the Earth; in which he thus recites the Opinion of *Leucippus*, Παρεκπεσεῖν τὴν γῆν εἰς τὰ μεσημβρινὰ μέρη, διὰ τὴν ἐν τοῖς μεσημβρινοῖς ἀραιότητα, ὅτε δὲ πεπηγότων τῶν βορείων διὰ τὸ καταψύχθαι τοῖς κρυμοῖς, τῶν ὑπὸ ἀντιδέτων πεπυρωμένων. *That the Earth fell, or was inclin'd towards the* Southern *Regions, by reaſon of the Rareneſs of thoſe Parts; The* Northern *Regions being*

Hypoth. 4. infra.

De Placitis Philoſ. l. 3. c. 12.

being grown rigid and compact, while the Southern *were ſcorch'd or on fire.* Whoſe Opinion is alſo recited by *Laertius*, in almoſt the ſame Words: Εκλείπειν ὃ ἥλιον καὶ σελήνην τῷ κεκλίσθαι τὸν γῆν πρὸς μεσημβρίαν, τὰ δὲ πρὸς ἄρκτον ἀεί τε νίφεσθαι, καὶ κατάψυχεσθαι, καὶ πήγνυσθαι. *The Sun and Moon were therefore ſubject to Eclipſes, becauſe the Earth was bent or inclin'd towards the* South. *But the* Northern *Regions grew rigid and inflexible, by the ſnowy and cold Weather which enſued thereon.* To the ſame Purpoſe is the Opinion of *Democritus*, recited by *Plutarch* in the ſame Chapter. Διὰ τὸ ἀνθενέστερον εἶναι τὸ μεσημβρινὸν τοῦ πρόσω ἐχόντος, αὐξομένην τε γῆν κατὰ τοῦτο ἐγκλιθῆναι· τὰ μὲν βόρεια ἄκεστα, τὰ δὲ μεσημβρινὰ κάκεστα, ὅθεν κατὰ τοῦτο βεβάρηται ὅπερ πρόσω ὄντα τοῖς καρποῖς καὶ τῇ αὐξήσει. That *by reaſon of the* Southern *ambient Air's Imbecillity, or ſmaller Preſſure, the Earth in thoſe Parts increas'd in Bulk, and ſo ſunk and bent that way. For the* Northern *Regions were ill temper'd, but the* Southern *very well; whereby the latter becoming fruitful, waxed greater, and, by an Over-weight, preponderated and inclin'd the whole that way.* As expreſs to the full is the Teſtimony of *Empedocles*, related by *Plutarch* in that Chapter which is entituled, Τίς ἡ αἰτία τοῦ τὸν κόσμον ἐγκεκλίσθαι, or, *Of the Cauſe of the Inclination of the World*, Τοῦ ἀέρος εἴξαντος τῇ τοῦ ἡλίου ὁρμῇ, ἐγκλιθῆναι τὰς ἄρκτους, καὶ τὰ μὲν βόρεια ὑφωθῆναι, τὰ δὲ νότια ταπεινωθῆναι, καθ' ὃ τὸν ὅλον κόσμον. *The* North, *by reaſon of the Air's yielding to the* Sun's *Force, was bent from its former Poſition; whereupon the* Northern *Regions were elevated, and the* Southern *depreſs'd; as, together with them, was the whole World.* To which agrees *Anaxagoras* in theſe Words, which immediately follow thoſe that are quoted before, *pag.* 101. Ὕστερον δὲ πάλιν τε ἔγκλισιν λαβεῖν. *But afterward the Pole receiv'd a Turn, or Incli-*

Lib. 9. Segm. 33.

Plutarch de Placit. Philoſ. l. 2. c. 8.

cliuation. Theſe ſo many and pregnant Teſtimonies of Antiquity, as to the Matters of Fact foregoing, (for as to the ſeveral Reaſons aſſign'd by them, they being, I ſuppoſe, but the ſingle Conjectures of the Authors, muſt be uncertain, and need not be farther conſider'd or inſiſted on in the preſent Caſe;) ſeem to me ſo weighty, that I cannot but build and rely very much upon them. How ſhould ſuch ſtrange and ſurprizing *Paradoxes* run ſo univerſally through the eldeſt Antiquity, if there were not ſome Ground or Foundation in earneſt for them? 'Twould be hard wholly to reject what were ſo unanimouſly vouch'd by the old Sages of Learning and Philoſophy, even tho' there were no other Evidence or Reaſon for our Belief. But when all theſe Authors, *the only competent Witneſſes in the Caſe*, do but confirm what, on other Accounts, as we have ſeen, and ſhall farther ſee, there is ſo good Reaſon to believe; and when ſo great Light is thereby afforded to the primitive Conſtitution of Nature, and the Sacred Hiſtory of the State of Innocency; their Atteſtations are the more credible, and the more valuable, and in the higheſt degree worthy of our ſerious Conſideration. What I can foreſee of Objection, deſerving our notice, againſt what has been advanc'd from the Teſtimonies of the old Philoſophers, is this; That they ſeem to favour the perpetual *Equinox* before the Flood, by the right Poſition of the preſent *Axis* of the Earth, parallel to that of the Ecliptick, (as the *Theoriſt* imagines,) and its Inclination or oblique Poſition acquir'd at the Deluge, (as the ſame Author ſuppoſes,) rather than the original Abſence, and ſubſequent Commencing of the Diurnal Rotation after the Fall of Man, as I here apply them. I anſwer,

(1.) The

(1.) The Paralleliſm of the *Axis* of a Diurnal, to that of an Annual Revolution, is, ſo far as I find, a perfect Stranger to the Syſtem of the World; there being, I think, not one of the heavenly Bodies, *Sun* or *Planet*, but has its own *Axis* oblique to the Orbit in which it moves. (2.) It will be farther evinc'd hereafter, That, *de facto*, before the Flood, the *Axis* of the Earth was oblique to its Annual Orbit, the Plane of the Ecliptick; and the Year diſtinguiſh'd into the preſent Seaſons, *Spring*, *Summer*, *Autumn*, and *Winter*. (3.) That equable and healthful Temper of the Air, which the *Theoriſt* chiefly relied upon, as neceſſary to the Longevity of the Antedeluvians, and fully prov'd by Authority, ſhall be accounted for without ſuch an *Hypotheſis*. (4.) The Teſtimonies before alledg'd do not, if rightly conſider'd, ſuit this *Hypotheſis*; nay, in truth, they fully confute it. Of the five Characters before-mention'd, under which we have reduc'd the main Teſtimonies, there are two which are common to this, and to the *Theoriſt*'s *Hypotheſis*. (1.) The perpetual and univerſal Equinox. (2.) The Coincidence of the Equator and Ecliptick, (tho' in ſomewhat a different manner.) So that the Teſtimonies for theſe two can neither eſtabliſh the one, nor the other, as equally ſuiting them both. The other three are peculiar to that *Hypotheſis* we have been proving, and by conſequence at the ſame Time eſtabliſh that, and confute the *Theoriſt*'s *Hypotheſis*. And theſe three are, (1.) The Equality of a *Day* and a *Year*. (2.) The *Sun* and *Planets* Riſing in the *Weſt*, and Setting in the *Eaſt*. (3.) The Poſition of the Poles near the Horizon, with the after Elevation of the *Northern*, the Depreſſion of the *Southern* Pole, and the Inclination or Bending of the Heavenly Bodies Courſes towards the *South*.

Phænom. 32. infra.

'Tis

'Tis evident at firſt View, that the two former of theſe three laſt mention'd *Phænomena*, are inconſiſtent with the *Theoriſt*'s *Hypotheſis*, and on a little Conſideration 'twill be ſo of the laſt alſo. For while the Poles of the Earth or World remain the ſame, as depending on the ſame proper *Axis* of the Earth's own Diurnal Revolution; 'tis plain, the Latitude of Places on the Earth, or the Elevation of the Pole equal thereto, remains invariable; and ſo the Pole which to the Inhabitants of Paradiſe was elevated at the leaſt 30 Degrees, could not be at the Horizon, whatever right Poſition the *Axis* of the Earth might have with reſpect to the Ecliptick. On the ſame Account there could, even in the *Theoriſt*'s own *Hypotheſis*, be no new Elevation of the one, or Depreſſion of the other Pole at the Deluge, nor Inclination of the Courſes of the *Sun* and *Planets* towards the *South*. All that could on the *Theoriſt*'s Principles be effected, (beſides the Earth's Equator, and Poles pointing to different fix'd Stars, and its Conſequences) was only this; That whereas before, the *Sun* was always in the Equator, or middle Diſtance from any Climate, it afterwards by turns came nearer to them, (as we commonly, tho' careleſly expreſs it) in *Summer*, and went farther from them in *Winter*, than before; which, upon the whole, was no more a Bent or Inclination to one Part of the Heavens than to the other; and ſo of Planets alſo. And the Caſe is the ſame as to the Poles of the Ecliptick; the *Northern* one being ſtill as much elevated above that of the World at one Hour of the Day, as depreſs'd beneath it at another. All which is, I think, ſufficient to ſhew, that the Teſtimonies of Antiquity, alledg'd by the *Theoriſt* for the perpetual *Equinox*, or the right Poſition of the Earth's *Axis* till the Deluge, and the oblique Poſition,

and

and different Seaſons then acquir'd, are ſufficient of themſelves alone to confute *his*, and eſtabliſh the preſent *Hypotheſis*. (5.) All Things conſider'd, ſuch a Poſition as the *Theoriſt* contends for, was more likely to incommode, than be uſeful to Mankind. Taking the Matter wholly as the *Theoriſt* puts it, it would prevent the Peopling of the *Southern* Hemiſphere, by the ſcorching Heat juſt under the Equator, without the leaſt Intermiſſion at any Time of the Year. It would render the Earth utterly unſerviceable, both under the Equator and Poles, and in the Climates adjoining, and ſo ſtreighten the Capacity of the Earth in maintaining its numerous Inhabitants; which, were the whole inhabitable, will appear not too large to contain them. It would, by the Perpetuation of one and the ſame Seaſon continually, hinder the Variety of Fruits and Vegetables of every Country; and many other ways ſpoil the ſettled Courſe of Nature, and be pernicious to Mankind. (6.) No mechanical and rational Cauſe of the Mutation of the Earth's *Axis* either has been, or, I believe, can be aſſign'd on the *Theoriſt*'s *Hypotheſis*, or any others, which ſhould embrace the ſame Concluſion. (7.) The Teſtimonies of *Diogenes* and *Anaxagoras*, are as expreſs almoſt to the Time, as to this Change it ſelf. The Words, being exceeding remarkable, are theſe, as *Plutarch* himſelf relates them in that Chapter before quoted, *Of the Cauſe of the Inclination of the World*; Διογένης καὶ Ἀναξαγόρας μὲν τὸ συστῆναι τὸν κόσμον καὶ τὰ ζῶα ἐκ τῆς γῆς ἐξαναγεῖν, ἐκκλιθῆναι πῶς τὸν κόσμον ἐκ τοῦ ἀυτομάτου εἰς τὸ μεσημβρινὸν ἀυτῆ μέρος. ἵπως γὰρ οἰκήσεως, ἵνα ἃ μὲν πνεῖ ἀοίκητα γένηται, ἃ δ' οἰκήσιμα μέρη τοῦ κόσμου, καὶ φύξιν, καὶ ἐκπύρωσιν, καὶ ἐυκρασίαν. *'Twas the Doctrine both of* Diogenes *and* Anaxagoras, *That after the Creation or primary Conſtitution of the World, and the*

Vid. *Phænom.* 35. *infra.*

Vid. Dr. *Bentley*, Serm. 8. p. 22, &c. and Dr. *Woodward's Eſſay*, p. 267, &c.

Plutarch de Placitis Philoſ. l. 2. c. 8.

the Production of Animals out of the Earth, the World, as it were of its own accord, was bent or inclin'd towards the South. *And truly 'tis probable, this Inclination was the Effect of Providence, on purpoſe that ſome Parts of the World might become habitable, and others uninhabitable, by reaſon of the Difference of the frigid, torrid, and temperate Climates thereof.* Which obſervable and moſt valuable Fragment of Antiquity ought to have been before mention'd, but was on purpoſe reſerv'd for this Place; where it not only fully atteſts the Matter of Fact, the Inclination of the Heavens towards the *South*; not only aſſigns the final Cauſe truly enough, (conſidering the Uninhabitableneſs of the Torrid, as well as of the Frigid Zones, in the Opinion of thoſe Ages) *viz.* the Diſtribution of the Earth into certain and fix'd Zones, Torrid, Temperate, and Frigid; but ſo accurately and nicely ſpecifies the *Time* alſo, *That ſucceeding the Creation*, agreeably to the preſent *Hypotheſis*; that were I to wiſh or chuſe for a Teſtimony fully to my Mind, I could ſcarcely have deſir'd or pitch'd upon a better. (6.) Laſtly, to name no more, The remarkable Teſtimonies of *Empedocles* and *Plato*, before quoted; the former for the Length of the primitive Day, and the latter for the Riſing of the Sun, Moon and Stars in the *Weſt*, and their Setting in the *Eaſt*; do both of them determine the *Time* of theſe *Phænomena* to be, *when Mankind ſprung out of the Earth*, and, as *Plato* adds, *when Beaſts convers'd with Men*: Which we learn from Scripture, was only before the Fall. Which Teſtimonies being expreſs to the Time of *two other Phænomena* of the Original State of the World, as the former of *Diogenes* and *Anaxagoras* are to that of the *Inclination*

Supra p. 98, 99, 100.

Plut. Politic. p. 175. E. & 176. A, B.

Gen. ii. 7. & iii. 1, 2, &c.

of

of the Earth's Axis; do ſtill more compleatly, and even unanſwerably prove, that the Time of theſe great Mutations is rightly aſſigned in the preſent *Theory*.

II. I come now, in the ſecond Place, to ſhew, That the preſent *Phænomena* of the *Earth* do prove, that its Diurnal Motion did not commence till ſome Time after its Annual, and by conſequence, in all Probability, not till after the Fall of Man. And an egregious Confirmation of this Aſſertion we meet with in the *Philoſophical Tranſactions*, Numb. 195. and it is the celebrated Dr. *Halley*'s *Theory of the Variation of the Magnetick Needle*; as corrected by my own Obſervations and Diſcoveries ſince, to be found in my *Diſcovery of the Longitude and Latitude by the Dipping-Needle*. Dr. *Halley*, therefore, from very many Obſervations, taken by ſeveral Perſons, in diſtant Places, and at various Times, has diſcover'd at leaſt two Magnetical Poles, the one *Northern*, and the other *Southern*; from which ariſes all the Declination of the Horizontal and Inclination of the *Dipping-Needle*, according to the Difference of Place. Which Poles being moveable, thence ariſe theſe Variations of Magnetick Needles, according to the Difference of Time. Now to account for theſe moveable Magnetick Poles, there muſt be a very great moving ſpherical Body within the Earth, and extending its Effects from Pole to Pole: The Center of this great moving Body, the Doctor rightly proves to be the ſame with the Center of the Earth; becauſe otherwiſe its Motion would change the Center of Gravity in the Earth, the Equilibration of its Parts, and the *Axis* of the Diurnal Rotation; and would withal alter the Surface of the Sea. This moving internal Subſtance muſt alſo be looſe from the external Parts of the Earth;

ſo

ſo that the external Parts may be reckon'd as a Shell, and the internal as a *Nucleus*, with a fluid Medium between. The internal *Nucleus* muſt be a Magnet, having its Poles in two Places diſtant from the Earth's *Axis*; which latter Poles do ſlowly change their Place in reſpect of the external Earth: This Motion is *Weſtward*, and by conſequence, the *Nucleus* has not attain'd the ſame Degree of Velocity with the exterior Parts in their diurnal Revolution; but ſo very nearly equals it, that in 365 Revolves, the Difference is ſcarce ſenſible. So that this *Nucleus* is many Hundreds of Years in revolving round the Earth *Weſtwards*, to the ſame Point it had ſet out before: The Reaſon why the internal *Nucleus* has not that Degree of Velocity which the exterior Shell has, Dr. *Halley* agrees muſt ariſe from the Impulſe whereby the diurnal Motion was impreſs'd upon the Earth; which being given to the external Parts, is thence communicated to the internal, but not ſo perfectly as to equal the firſt Motion impreſs'd on, and ſtill conſerv'd by the ſuperficial Parts of the Globe. Thus far Dr. *Halley* agrees with me. So that here we ſee, That when one of the moſt ſagacious Naturaliſts that ever was, reaſons from plain Matter of Fact, or the known Obſervations of the Variation of the Declination of the Magnetick Needle, he is oblig'd to make exactly ſuch Deductions as from quite other Principles and Reaſonings I ſaw Ground to ſuppoſe; and at once confirms many of the principal and moſt paradoxical Parts of this Theory; and eſpecially that Propoſition I am now upon, namely, That the Earth's diurnal Motion did not commence till ſome Time after its annual, *i. e.* till after it was entirely form'd and conſolidated together; and by conſequence, in all

Proba-

Probability, not till after the Fall of Man. In the next Place, therefore,

III. I ſhall aſſign the probable Mechanical Cauſe of this Commencement of the Earth's Diurnal Motion, after its Annual had continued ſome Time, and ſhew that that Cauſe is agreeable to the preſent *Phænomena* of Nature and of the Earth. Now the only aſſignable Cauſe, is that of the Impulſe of a Comet with little or no Atmoſphere, or of a central Solid hitting obliquely upon the Earth along ſome Parts of its preſent Equator. From which Impulſe, both the Annual Orbit of the Earth, as we ſhall obſerve preſently, would be alter'd; and a Vertiginous Motion about a new and real *Axis*, would certainly commence. And this I ſuppoſe was the true Mechanical Original of the Earth's Diurnal Motion, and no other. And that this Cauſe is agreeable to the *Phænomena* of Nature, is plain; becauſe ſuch a Motion and Impulſe of a Comet is as poſſible as any other whatſoever, from the now known *Phænomena* of their Motions; and becauſe the exceeding Brightneſs of many Comets Heads, in *Hevelius* and others, makes it very probable, that ſome Comets have very little Atmoſphere, and others perhaps none at all. And then this Cauſe is not only agreeable to, but almoſt demonſtrated by the *Phænomena* of our preſent Earth: For, as we have juſt now ſeen, Dr. *Halley* and my ſelf do find, from the *Phænomena* of the Variation and Inclination of Needles, that the external Parts of the Earth receiv'd the original Impulſe which caus'd the Diurnal Motion; that it was from them convey'd to the internal Parts, and this ſo plainly, that thoſe internal Parts have not yet in 6200 Years Time receiv'd the entire Impreſſion, but move round ſomewhat more

more ſlowly to this very Day. Which is not only a ſufficient, but a very ſurprizing Account of this Matter; only it muſt here be obſerv'd, that in Probability, the Comet which cauſed the Diurnal Revolution, was of the Bigneſs rather of one of the ſmall Secondary, than of the large Primary Planets; for otherwiſe, by its cauſing vaſt Tides in the Abyſs, after it was paſs'd by, it would have occaſion'd many more Alterations in the Earth, than we have any Reaſon to believe happen'd at that Time.

To theſe three grand Arguments for the Proof of my main Concluſion, I ſhall, by way of ſupernumerary ones, or Appendages, add one or two more, and ſo leave the whole to the Conſideration of the impartial Reader.

(4) The State of Mankind, without queſtion, and perhaps that of other Animals, was before the Fall vaſtly different from the preſent; and conſequently requir'd a proportionably different State of external Nature; of which, without the *Hypotheſis* before us, no Account can be given, or at leaſt has not yet by any been attempted. The World, as to other Things, ſeems to have been at firſt, in great meaſure, put into the ſame Condition which we ſtill enjoy; and yet Reaſon, as well as Scripture, aſſures us, that ſo different a Condition of Things in the Animal, Rational and Moral, muſt have been ſuited with an agreeably different one in the Natural and Corporeal World. Which being conſider'd, and that at the ſame Time no remarkable Difference has been, or perhaps can be aſſign'd, but what the Hypotheſis before us, and its Conſequences afford us; and that withal a ſatisfactory Account of the ſeveral Particulars is deducible from the ſame, as I hope to make appear hereafter; upon the whole, I think this a very conſiderable

derable Atteſtation to what has been before inſiſted on.

(5.) Laſtly, The preſent *Hypotheſis* gives an eaſy Account of the Change in the Natural, on the Change in the Moral World; and of the ſad Effects of the Divine Malediction upon the Earth after the Fall of Man; which till now has not, that I know of, been ſo much as attempted by any. Several have been endeavouring to account for that Change which the Deluge made in the World: But they are ſilent as to the natural Cauſes or Occaſions of a Change, which (Antiquity, ſacred or prophane, being judge) was in all reſpects ſtill more remarkable: The State of Innocency, and that of Sin, being ſure on all Accounts more different from, and contradictory to each other, than the Antediluvian and Poſtdiluvian, either in Reaſon can be ſuppos'd, or in Fact be prov'd to be. Now as to the Particulars of this Change, and the Cauſes of them; and how well, on the *Hypotheſis* we are upon, they correſpond to one another, I muſt leave that to the Judgment of the Reader, when I come to trèat of 'em in their own Place hereafter. In the mean time, this may fairly be ſaid, That *This* being the *firſt* Attempt at an *Entire Theory*, or ſuch an one as takes in *All* the great Mutations of the Earth; as it will on that Account claim the Candor of the Reader, and his unbiaſs'd Reſolution of embracing the Truth (however new or unuſual the Aſſertions may ſeem) when ſufficiently evidenc'd to him; ſo the Coincidence of Things from firſt to laſt, thro' ſo many Stages and Periods of Nature, and the Solution of all the main *Phænomena* of every ſuch different Stage and Period, from the Creation to the Conſummation of all Things; if they be found juſt,

mechanical, and natural, will it ſelf deſerve to be eſteem'd one of the moſt convincing and ſatisfactory Arguments for any ſingle Particular of this Theory that were to be deſir'd; and ſhew, that not any great Labour or Study of the Author, but the happy Advantage of falling into true and real Cauſes and Principles, is, under the Divine Providence, to be own'd the Occaſion of the Diſcoveries therein contain'd. In all which, may theſe my poor Endeavours prove as ſatisfactory to the Minds of others, as they have been to my own, and give them the ſame Aſſurance of the Verity and Divine Authority of thoſe Holy Books, where the ſeveral Periods are recorded, and the *Phænomena* chiefly preſerv'd, which the Diſcovery of theſe Things has afforded my ſelf, and I am ſure that my Labours will not be in vain.

Scholium. It will be fit here to ſtate my *Hypotheſis*, or Opinion about the Circumſtances of the Earth's Annual Motion before the Commencement of its Diurnal, more particularly; that ſo the Reader may not only obſerve, that the one was *prior* to the other in general, but how and in what manner that Motion was perform'd in the Primitive or Paridiſiacal State of Mankind. Notwithſtanding therefore, I ſhall hereafter aſſert, and attempt to prove, that the *Original Orbits* of the Planets, and particularly the Earth, were *perfect Circles*; meaning by the *Original Orbits*, thoſe in which they were to revolve immediately after they were not only entirely form'd, but were alſo to be univerſally inhabited; yet I muſt here add, that I ſuppoſe that this Reduction of the very oblong eccentrical Orbit of our Earth at leaſt, if not of the other Planets, whilſt it was a Comet, into an uniform concentrical and circular one, which

which I ſuppoſe it had before the Deluge, was gradual, and not done all at once; the greateſt Part at the commencing of the *Moſaick* Creation; and the reſt at the commencing of the Diurnal Rotation afterwards. Nay, indeed, this is almoſt of Neceſſity to be ſuppos'd; becauſe the Diurnal Rotation could not mechanically, or without a Miracle, begin, but by the oblique Colliſion of a Comet, which we have already ſuppos'd the Cauſe of it; and this Colliſion muſt neceſſarily affect the Annual Motion, and alter the *Species* of its *Ellipſis* alſo: Which being ſuppos'd, and that withal, Providence adjuſted all Circumſtances, ſo as ſhould be moſt for the Advantage of the Regions adjoining to *Paradiſe*, where alone *Adam* and the other Creatures dwelt in this State, as is moſt reaſonable to do; we ſhall then have our Earth revolving in a moderately Eccentrical *Ellipſis*, without any Diurnal Rotation, about the Sun in the Space of a Year; the exact Length whereof will not now be determinable; a Day and a Year will be all one: We ſhall have ſome Diameter of the Earth, which paſs'd near Paradiſe parallel to the longer *Axis* of that *Ellipſis* it revolv'd in: And withal we ſhall have the Place of Paradiſe, reſpecting nearly the ſame fix'd Stars with the *Perihelion* of the *Ellipſis*. Which being ſuppos'd, we may obſerve, that as a Circular Orbit is much the beſt for a Globe inhabited *all round*, *That* providing equally for the Convenience of both Hemiſpheres; ſo is this Elliptick Orbit the beſt for a Globe inhabited but in *one Place*, as the Earth was in its primitive State; *This* providing peculiarly for the Happineſs of that particular Spot, where alone the living Part of the Creation was to reſide; as on a little Conſideration will eaſily appear. Thus, for inſtance,

the Heat of the Day-time would gradually increaſe *before*, and decreaſe *after* Noon; but yet would never be violent; becauſe a great Part of the Increaſe of the Heat by the Sun's riſing above the Horizon, ſtill higher and higher in the Forenoon or Spring, would be prevented by the Earth's real receding from him, and approaching nearer his *Aphelion* during the ſame Time: And *vice verſâ* in the Afternoon, or Summer; which would render the State of the Air more equal and uniform, and leſs uneaſy or inconvenient than any other Method whatſoever. Thus alſo not only the Cold of the Night, (which by our Nearneſs to the Sun, would be inconſiderable) but the too long Duration and Darkneſs thereof would be entirely avoided. For the whole Night would then bear no more Proportion to the entire Νυχθήμερον, than in the *Elliptis* the *Area* *p*B*q*, below the *Latus Rectum*, bears to the whole *Area* HBGF; ſuppoſe the Proportion of 1 to 6, which will amount to no more than two Months: Out of which Night-time we muſt deduct the two *Crepuſcula*, each of near a Fortnight, which now reduces the Duration and Darkneſs of the Night it ſelf, to about a ſingle Month; out of which alſo another Fortnight is to be ſtill deducted for the Time of the Moon's being above the Horizon, and enlightening the Earth: So that at laſt if the Moon's *Crepuſcula* be at all allow'd for, as they ought to be, we ſhall ſcarce have a ſingle Week of pure Darkneſs in the whole Year; to the great Comfort, Advantage, and Benefit of this truly Paradiſiacal State. But if it be objected, that this implies, that only ſome Parts of the Earth were habitable with any Convenience before the Fall, *viz.* thoſe about Paradiſe; or, however, not more than that Hemiſphere: I reply, That this Objection

Fig. 3.

ſeems to me hardly enough conſiderable to deſerve an Anſwer. I ſhould think it no great Matter, if all the Earth, excepting the Regions about Paradiſe, were *uninhabitable* at a Time when they were *not to be inhabited.* For to what Purpoſe is it, that all proper Proviſion be made for the Entertainment of a Company of Gueſts at a Table, when 'tis certainly known that *not one of thoſe* Gueſts will be there. Providence does ever wonderfully provide for the Accommodation of his Creatures, where-ever it places them: But that a ſuitable Proviſion is made for them where they will *never* be plac'd, I ſee no Reaſon to imagine. But if it be ſtill farther objected, that in this *Hypotheſis*, the Heat of the Sun before the Fall would at laſt be intolerable, nay ſeveral hundred times as great as with us at preſent, becauſe of the Continuance of his Stay above the Horizon for ſo many Months together. I anſwer, that this is all plainly a Miſtake: The Heat produc'd by the Fire, or the Sun, for ſome Time conſiderably increaſes; but this only for a while, till a ſuitable or competent Degree of Heat, correſpondent to the Sun or the Fire's Power at that Diſtance be produc'd, but no longer. Let us try this a little by Calculation in Dr. *Keill*'s way, who made the Objection. A Piece of Wax will melt in a Second of Time, ſuppoſe, at the Diſtance of an Inch from a very hot Fire; becauſe the Degree of Heat there is ſufficient to diſſolve its Texture immediately. Let us then remove it to the Diſtance of 100 Inches, where the Heat is 10,000 times weaker, for the Space of 10,000 Seconds, or near 3 Hours Space. The Quantity of Heat therefore in Dr. *Keill*'s way muſt be equal to the Rectangle contain'd, betwixt the Sine of the Angle of Incidence (which we ſuppoſe the ſame in both Caſes) and the Time

of Continuance; or exactly equal to the former Heat; and must therefore have the same Effect in 3 Hours Time that the other Heat had in one Second, and melt the Wax as the other did. Which yet I presume Dr. *Keill* did not believe it would. Thus let us compare the Intenseness of the Heat of the Sun at the Equator and near the Poles, where the Sines of the Sun's Angle of Incidence [for the Day-time or 12 Hours at the Equator, and for the 12 Hours at the Conclusion of the Half-year's Day near the Poles] are as 10 to 1; which, according to Dr. *Keill*, will be as 10 × 12 to 1 × 4320, or as 1 to 36; And so the Heat near the Pole be 36 times as intense as that at the Equator; which I presume Experience does not attest. But after all, this Objection, if it were true, chiefly relates to a Circular Orbit of the Earth before the Fall; but in the present Elliptick *Hypothesis* is very little to the Purpose.

IV. The Ancient Paradise or Garden of *Eden*, the Seat of our first Parents in the State of Innocence, was about the *North-West* Bounds of *Assyria*, at the River *Tigris* and *Euphrates*: (for their *Antediluvian* Streams seem to have been united before they were come so far as *Assyria*:) a little below which Place they were parted into four Branches, and so ran into the great *Southern* Ocean, call'd by the Ancients the *Red-Sea*, at four Out-lets at no small Distance from one another.

That somewhere thereabouts, on the *Northern* Re-

Regions of *Meſopotamia* was the Place of the ancient Paradiſe, ſeems very probable from two of its Rivers, *Tigris* and *Euphrates*, occurring in the Deſcription of its Situation by *Moſes*; from the Neighbouring Countries to *Eden* mention'd in Scripture; and from the Countries which were water'd or encompaſs'd by thoſe four Streams, *Piſon*, *Gihon*, *Tigris*, and *Euphrates*, which aroſe from the grand River of Paradiſe, ſoon after it had water'd the ſame. And when the following Theory is underſtood, which will ſhew that all our preſent upper Earth is factitious, and the Sediment of the Deluge; and that, by conſequence, the Riſe and Currents of Rivers are not always the ſame now as before the Flood, the Strangeneſs and Novelty of this Aſſertion will not appear ſo great an Argument againſt it, as at firſt it muſt neceſſarily do. I confeſs, the Situation of Paradiſe has been a very obſcure Problem; becauſe we ſtill examine the Deſcription of it by the *poſt-diluvian* Geography, and the *preſent* Courſe of Rivers there. But if we would lay aſide that Miſtake, I think *Moſes*'s Account fixes the Garden of *Eden* at the Place here aſſign'd by us, and no other. Let us trace all the Deſcription.

Iſaiah xxxvii. 12, 13. Ezekiel xxvi. 22, 23.

And the Lord God planted a garden eaſtward in Eden. *Eden*, by the Situation of the Places menti-on'd with it in Scripture, and on Account of the City *Adana* upon the River *Euphrates*, ſeems to be partly in *Syria* and partly in *Meſopotamia*; whereby the Garden in the *Eaſt* Part of *Eden*, will be ſituate about the *North-Weſt* Bounds of *Aſſyria*, according to this *Hypotheſis*. *And a river went out of Eden, to water the garden:* That is, it ran partly *Eaſtward*, ſince the Garden was planted in the *Eaſt* Part of *Eden*, as we have ſeen. And hence it appears, that originally *Tigris* and *Eu-*

Gen. ii. 8, &c.

Steph. Byzant. in *Adana.*

phrates, if then they were two Rivers, were united together before they came ſo far *South* as *Meſopotamia*; and the united Stream directed its Courſe *Eaſtward* through the *Northern* Part of *Meſopotamia*, between the preſent Channels of *Euphrates* and *Tigris* there, and ſo *went out of Eden to water the garden. And from thence it was parted, and became into four Heads*, or Beginnings of different Streams. *The name of the firſt was Piſon*, which is ſtill preſerv'd in that of * *Phyſcus*, a River running into *Tigris*; *that was it which compaſſed the whole land of Havilah*, or ran *South-Weſtward*, near *Syria* and *Canaan*, and after it had compaſs'd the Country belonging to † *Havilah*, in the *South-Weſt* of *Arabia deſerta*, ran into the *Arabian* Gulph, and ſo into the Ancient Red Sea. *The name of the ſecond river was Gihon*, which is ſtill preſerv'd in that of || *Gyndes*, a River alſo running into *Tigris*, *that was it which compaſs'd the whole land of Cuſh*, or ran alſo *Southward*, inclining to the *Weſt*, and after it had compaſs'd the whole Land of *Cuſh*, ∴ in the *North-Weſt* of *Arabia Felix* and *South-Weſt* of *Arabia Petrea*, ran into the ſame Gulph and Sea with the former. *The name of the third river was Hiddekel*, or *Tigris*, whoſe Name is preſerv'd in that famous River which ſtill ſeparates *Aſſyria* from *Meſopotamia*; *that was it which went toward the Eaſt of Aſſyria*, and therefore was the moſt *Eaſtern* Branch, which ran *Eaſtward* till it was paſt *Aſſyria*, and then turn'd to the *South*, and waſh'd that Country on its *Eaſtern* Borders, as it does now on its *Weſtern*, and ſo paſſing on, enter'd the great Ocean or *Red Sea*, by the *Perſian* Gulph: As did alſo the *fourth* or principal *Branch*, which ran neareſt to the preſent Courſe of the moſt famous of the Rivers of thoſe Countries, *Euphrates*,

* *Xenophon de Expedit. Cyri*, l. 2.

† Vid. *Joh. Clerici Comment. in* Gen. ii. 11.

|| *Herodot.* i. 189.

∴ *Bochart. Phaleg.* l. 4. c. 2.

tes, and which therefore has its ancient Name preſerv'd therein to this Day.

This Account we ſee takes in all the Deſcription of *Moſes*, excepting that which belongs to the Metals and Minerals of ſome of thoſe Antediluvian Countries. But ſince the Sediment of the Waters of the Deluge has cover'd thoſe Countries and Mines ſo deep, as to take away generally the Expectation of our obtaining or examining thoſe Metals and Minerals, as will hereafter appear, I ſhall not inſiſt any farther on that Matter; but conclude that our preſent *Hypotheſis* agreeing with all the Characters in *Moſes* that are capable of being examin'd, and no other *Hypotheſis*, I think, doing ſo, ſeems to afford good Foundation for our Belief that we have not much err'd in our Opinion; but that the Garden of *Eden* was ſituate about the *North-Weſt* Bounds of *Aſſyria*, at the River *Tigris* and *Euphrates*.

V. The Primitive Ecliptick, or its correſpondent Circle on the Earth, interſected the preſent Tropick of *Cancer*, if not at Paradiſe, yet at leaſt at its Meridian.

Since from the laſt *Hypotheſis* but one, it appears that the Primitive Ecliptick was a fix'd Circle on the Earth, as well as in the Heavens; and muſt both equally divide the preſent Equator, and touch the preſent Tropicks; 'tis proper to fix, if poſſible, the Point of Interſection with the *Northern* Tropick; whereby the entire Circle may ſtill be deſcrib'd, and its original Situation determin'd. Which is the Attempt of this *Hypotheſis* we are now upon; and which I thus prove.

(1.) The

(1.) The Production of Animals out of the Earth and Waters, at or near Paradiſe, ſeems to have requir'd all the Heat poſſible in any Part of the Earth; which being to be found only near the ancient Ecliptick, confirms the laſt mention'd Argument, and pleads for that Situation of Paradiſe which is here aſſign'd to it.

(2.) And principally, This Situation is determin'd by the Coincidence of the Autumnal Equinox, and the Beginning of the Night or Sun-ſet, at the Meridian of Paradiſe. 'Tis known that at Paradiſe, or the Place of the Creation of Man, the Νυχθήμερον, or Natural Day, commenc'd with the Sun-ſetting, Six a Clock, or coming on of the Night. 'Tis granted alſo, that the Beginning of the moſt ancient Year, (which ſhall preſently be prov'd to have been at the Autumnal Equinox) was coincident with the Beginning of the World, or of the *Moſaick* Creation. Which Things compar'd together, do determine the Queſtion we are upon. It being impoſſible, on the Grounds here ſuppos'd, that Sun-ſet and the Autumnal Equinox ſhould be coincident to any but thoſe in the *Northern* Hemiſphere, at the Point of Interſection of the ancient Ecliptick, and the preſent Tropick of *Cancer*; or ſuch as were under the ſame Meridian with them; as any ordinary Aſtronomer will ſoon confeſs: Which Argument is decretory, and fixes the Place of Paradiſe to the greateſt Exactneſs and Satisfaction.

Gen. i. 5, 8, 13, 19, 23, 31.

Corollary 1. *Hence a plain Reaſon is given, why the Days of Creation commenced at Evening; which otherwiſe is a little ſtrange; It being but a neceſſary Reſult of the Time of the Year, and Region of the Earth, when, and where the Creation began.*

Co-

Coroll. 2. *As alſo why the* Jewiſh *Days, eſpecially their Sabbath-Days, began at the ſame Time ever ſince : The Memory of the* Days *of Creation being thereby exactly preſerv'd.* Lev.xxiii. 32.

Coroll. 3. *As alſo why their Civil Years, but eſpecially their Sabbatical Years, and Years of Jubilee, (even after their Months were reckon'd from the Vernal) began at the Autumnal Equinox : The Memory of the* Years *of the Creation being thereby alike exactly preſerv'd alſo.*

VI. The Patriarchal, or moſt ancient Antediluvian Year, mention'd in the Scripture, began at the Autumnal Equinox. *Vid.Calviſ. Prolegom. de tempore mundi conditi*, c. 34.

The Reaſons of this Aſſertion are theſe enſuing.

(1.) The principal Head or Beginning of the *Jewiſh* Year in all Ages, was the firſt Day of their Autumnal Month *Tiſri* ; and was accordingly honour'd with an extraordinary Feſtival, the Feaſt of Trumpets : While the Head or Beginning of their ſacred Year, the firſt of *Niſan*, had no ſuch Solemnity annex'd to it : As is known and confeſs'd by all. Lev xxiii. 24, 25. Numb. xxix.1--6.

(2.) When God commanded the *Jews*, on their coming out of *Egypt*, to eſteem the Month *Niſan*, the Firſt in their Year ; it ſeems plainly to imply, that till then it had not been ſo eſteem'd by them. The Words are theſe ; *The Lord ſpake unto Moſes and Aaron in the land of Egypt, ſaying, This Month* (ſhall be) *unto you the beginning of Months ; it* (ſhall be) *the firſt Month of the Year to you.* And this is ſtrengthen'd by conſidering, that tho' we here find an *Original* of the ſacred Exod. xii. 1, 2.

Year

Year in the Spring; yet we no where do of the civil in Autumn: Which therefore, 'tis very probable, was the immemorial Beginning of the ancient Year long before the Times of *Moſes*.

(3.) Whatever Beginning of the *Jewiſh* Year there might be on other Accounts; 'tis confeſs'd by all, That the Beginning of the Sabbatical Years, and Years of Jubilee, (by which, in all Probability, the primary Years of the World were commemorated and preſerv'd,) was at the Autumnal Equinox: Which is a very good Argument that thoſe Ancient Years, ſo commemorated and preſerv'd, began at the ſame Time alſo.

Lev. xxv. 8, 9, 10.

(4.) The Feaſt of Ingathering, or of Tabernacles, which was ſoon after the Autumnal Equinox, is ſaid to be *in the End*, or *after the Revolution of the Year*: Which is no ſmall Confirmation of the Aſſertion we are now upon.

Exod. xxii. 16. & xxxiv. 22.

(5.) What was alledg'd under the laſt Propoſition, is here to be conſider'd; That on this *Hypotheſis*, a clear Reaſon is given of the Night's preceding the Day in the Hiſtory of the Creation, and ever ſince among the *Jews*; which otherwiſe is not ſo eaſily to be accounted for.

(6.) The Teſtimony of the *Chaldee* Paraphraſt, (to which *Joſephus* does fully agree) is as expreſs as poſſible, upon 1 *Kings* viii. 2. where the Words are, *In the Month Ethanim, which is the ſeventh Month*; (*viz.* as all confeſs, from the Vernal Equinox) upon which the Paraphraſe is, *They call'd it of Old the Firſt Month; but now it is the Seventh Month*: Which may well counterpoiſe all that from ſome later Authors can be produc'd to the contrary.

(7.) This is alſo confirm'd by the remarkable Teſtimony of *Plutarch*; who, ſpeaking of the Day

Plut. de Iſide & Oſiride, p. 356. D.

Day of *Oſiris* or *Noah*'s going into the Ark, ſays expreſly that it was the 17th Day of the Month *Athyr*; in which the Sun paſſes through *Scorpius*; and this Time *Moſes* as expreſly calls the 17th Day of the Second Month; therefore the firſt Month began when the Sun enter'd into *Libra*, or at the Autumnal Equinox. So that upon the whole, I may fairly conclude, notwithſtanding ſome ſmall Objections, (which either loſe their Force on ſuch Principles as are here laid down, or will, on other Occaſions, be taken off,) That the moſt Ancient or Patriarchal Year began at the Autumnal Equinox.

VII. The Original Orbits of the Planets, and particularly of the Earth, before the Deluge, were perfect Circles.

This is in it ſelf ſo eaſy and natural an *Hypotheſis*, that I might very juſtly take it for granted, and make it a *Poſtulatum*: And in caſe I could prove every Thing to agree to, and receive Light from the ſame; and withal account for the preſent Eccentricity, no Man could fairly charge it with being a precarious or unreaſonable one. But altho' the main Reaſons for ſuch a Propoſition are, I confeſs, to be taken from the Conſequences thence to be deriv'd; and the admirable Correſpondence of them all to Ancient Tradition, to the *Phænomena* of the Deluge, and to the Scripture Accounts relating thereto, as will be viſible hereafter; yet there being ſome Arguments of a different Nature which may render it probable, and prepare the Reader for admitting the ſame, before the Conſequences thereof come to be fully underſtood, I chuſe to place this Aſſertion here, among

among my *Hypotheſes*; tho' I do not pretend that the Arguments *here* to be made uſe of, ought to put the ſame ſo near to Certainty, as its Fellows have, I think, Reaſon to expect with unprejudic'd Readers. But to come to the Matter it ſelf: The Reaſons I would offer, are theſe following.

(1.) The Deſigns and Uſes of Planets ſeem moſt properly to require circular Orbits. Now in order to give a rational Gueſs at the ſame Deſigns and Uſes of Planets, I know no other way than that from a Compariſon with the Earth. And here, ſince we find one of the Planets, and that plac'd in the Middle among the reſt, to agree with the others in every Thing of which we have any Means of Enquiry; 'tis but reaſonable to ſuppoſe, that it does ſo alſo in thoſe, which 'tis impoſſible for us, by any other certain way, to be aſſured of. If we obſerve a certain Engine in one Country, and ſee to what Uſe 'tis put, and to what End it ſerves; and if afterward we ſee another, tho' in a different Country, agreeing to the former in all Things, as far as we are able to diſcover: Tho' we are not informed of its Deſign and Uſe, we yet very naturally, and very probably, believe that it ſerves to the ſame Purpoſe, and was intended for the ſame End with the former. 'Thus it ought ſure to be in the Caſe before us; and by the ſame way of reaſoning, we may fairly conclude to what Uſes all the Planets ſerve, and on what general Deſigns Providence makes uſe of them, *viz.* To be the Seats or Habitations of Animals, and the Seminaries of ſuch Plants and Vegetables as are neceſſary or convenient for their Support and Suſtenance. Which being therefore probably ſuppos'd of the reſt, and certainly known of the Earth, I argue, That a circular Orbit, being the moſt fit and proper for ſuch Purpoſes,

may

may juſtly be preſum'd the original Situation of the Planets, and the primary Work of Providence in ordering their Courſes. Such Creatures, Rational, Senſitive, or Vegetative, as are fit and diſpos'd for a certain Degree of the Sun's Heat, are very much incommoded by one much greater, or much leſs; and by conſequence are peculiarly accommodate to a Circular, but by no means to an Eccentrical Orbit. And tho' the Inequality of the Earth's Diſtance from the Sun, in the different Points of its Orbit, be ſo inconſiderable, that we obſerve little Effect of it; yet in ſome of the other Orbits, which are much more Eccentrical, it muſt be very ſenſible, and have a mighty Influence on the Productions of Nature, and the Conſtitution of Animals in Planets revolving therein. And what Reaſon can we imagine, why the *Southern* Hemiſphere, for inſtance, of a Planet, by the Situation of the *Perihelion* near its Summer Solſtice, ſhould be ſo different from the *Northern*, in the primary Contrivance of the Divine Providence? This ſeems not ſo agreeable to the original Regularity and Uniformity of Nature; nor does it look like the immediate Effect of the Divine Power and Wiſdom in the firſt Frame of the World, when all Things juſt coming out of the Creator's Hands, muſt be allow'd to have been perfect in their Kind, and exceeding good; when Creatures rational and irrational, of the ſame Species, Abilities, Faculties and Demerits, were in common to live upon the ſeveral Parts and Regions of it: And the natural State of Things was to be equally ſuited to them all, and diſpos'd impartially among them.

Vid. *Arg.* 4. *Conſeq.* 2. *Hypoth.* xi. *infra.*

(2.) The oppoſite Poſition and Uſe of the oppoſite Species of Bodies in the Comets, ſeem, by the Rule of Contraries, to ſuppoſe what we have been con-

contending for. If indeed we had found a Mixture of Planets and Comets in the ſame Regions of the Solar Syſtem, and a Confuſion of the Orbits and Order of both: If we had diſcover'd all Species of *Ellipſes*, with all Degrees of Eccentricity from the Circle to the *Parabola*; the Propoſition I am upon would be more than precarious, and but too diſagreeable to the Frame of Nature. But ſince we find no ſuch Thing, but the clean contrary; namely, That all the Comets revolve in Orbits ſo extreamly eccentrical, that ſuch Segments of them as come within our Obſervation are almoſt *parabolical*, or of an infinite Degree of Eccentricity; 'tis not unreaſonable to conclude, That, likely enough, the contradiſtinct Species of Bodies, the Planets, originally revolv'd in Orbits of no degree of Eccentricity; that is, in perfect Circles: The Eccentrical or *Elliptick* Orbits of the one, among other things probably diſtinguiſhing them from the other; which originally moved in Concentrical or Circular ones.

(3.) This *Hypotheſis* is favour'd by the ancient Aſtronomy; which ſo pertinaciouſly adher'd to the Circular *Hypotheſis*, notwithſtanding all its Eccentricks, Epicyles, and ſtrange Wheelwork; that it may ſeem the Effect of ancient Tradition, that once the Heavenly Motions were really Circular. And this is the more remarkable, becauſe, not only the true Syſtem of the World, but the *Conick Sections*, and among them the *Elliptick* Figure was very anciently known and conſider'd. By the Introduction of which, all the fanciful and uncouth Figments they were forc'd upon, might have been wholly ſpar'd, and an eaſy and natural *Idea* of the Planetary Motions obtain'd. Which, if ever it had been ſtarted, by its exact Agreement to the *Phænomena*, could

could ſcarce ever have been loſt; and which yet, as far as I know, never came into the Minds of Aſtronomers till the Great *Kepler*'s Time; who firſt prov'd the Orbits to be *Elliptick*, too plainly to be denied, or almoſt doubted any longer.

(4.) The Quantity of the ſeveral Orbits *Eccentricity*, and the Poſition of their *Aphelia*, are ſo various, different, and without any viſible Deſign, Order or Method, ſo far as is hitherto diſcover'd, that the whole looks more like the Reſult of Second Cauſes, in ſucceeding Times, than the Primary Contrivance and Workmanſhip of the Creator himſelf. 'Tis indeed poſſible that there *may* be Deſign and Contrivance in theſe Things, tho' we cannot diſcern them; yet ſeeing we have, on the common Grounds, no Reaſon to affirm ſuch a Thing; ſeeing the equidiſtant Situation from the Sun would more clearly ſhew ſuch Deſign and Contrivance; ſeeing alſo, the original circular Motion of the Earth once granted, the Poſition of the Earth's *Aphelion*, and the Quantity of its Orbit's *Eccentricity*, do ſo remarkably infer the Divine Wiſdom and Artifice therein, and are wonderfully ſubſervient to the higheſt Purpoſes; (by the one, the Day of the Year when the Flood began; by the other, the Length of the Antediluvian Year, being nearly determinable; of which hereafter;) 'tis, I think, but fair Reaſoning to conclude, That that *Hypotheſis*, which does ſo certainly argue Art and Contrivance, Order and Providence, is to be preferr'd to another, which ſeems to infer the clean contrary, or at beſt only leaves Room for a Poſſibility thereof; as 'tis in the preſent Caſe. I do by no means queſtion, but theſe uncertain *Eccentricities* and various Poſition of the *Aphelia* of the Planets, with all other ſuch ſeemingly anomalous *Phænomena* of Nature, hap-

pen'd by a particular Providence, and were all (one way or other) fitted to the State of each Species of Creatures inhabiting the ſeveral Planets, according as their reſpective Behaviours or Circumſtances, in their ſeveral Generations, requir'd; (of which the ſucceeding Theory will be a pregnant Inſtance:) But my Meaning is this; That when every Thing was juſt as the Wiſdom of God was pleas'd to appoint; when each Creature was compleat and perfect in its Kind, and ſo, ſuited to the moſt compleat and perfect State of external Nature; 'tis highly probable that the outward World, or every ſuch State of external Nature, was even, uniform, and regular, and agreeable to the Neceſſities of the whole Body of thoſe Creatures that were to be plac'd therein; and as properly ſuited to all their ſeveral Conveniencies, as was poſſible, or reaſonable to be expected. Such a State, 'tis natural to believe, obtain'd through the Univerſe, till ſucceeding Changes in the Living and Rational, requir'd proportionable ones in the Inanimate and Corporeal World. 'Tis moſt philoſophical, as well as moſt pious, to aſcribe only what appears wiſe, regular, uniform, and harmonious, to the Firſt Cauſe; (as the main *Phænomena* of the Heavenly Bodies, their Places and Motions, do, to the greateſt degree of Wonder and Surprize;) but as to ſuch Things as may ſeem of another Nature, to attribute them entirely to ſubſequent Changes, which the mutual Actions of Bodies one upon another, fore-ordain'd and adjuſted by the Divine Providence, in various Periods, agreeably to the various Exigencies of Creatures, might bring to paſs.

(3.) It being evident, that Multitudes of Comets have paſs'd through the Planetary Syſtem; that

that in ſuch their Paſſage they were ſometimes capable of cauſing; nay, in very long Periods muſt certainly, without a Miracle, have cauſed great Alterations in the ſame; and that the Nature and Quantities of the preſent *Eccentricities* or Anomalies, are no other than what muſt be expected from ſuch Cauſes; 'tis very reaſonable to allow theſe Effects to have really happen'd; and that conſequently all might be, as I here contend it was originally, orderly, and regular; and particularly the Planetary Orbits uniform, concentrical and circular, as I am here concern'd to prove. If any one of us ſhould obſerve that a curious Clock, made and kept in Order by an excellent Artiſt, was very notably different from the true Time of the Day, and took notice withal of a certain Rub or Stoppage, which was very capable of cauſing that Error in its Motion; he would eaſily and undoubtedly conclude, that ſuch an Error was truly occaſion'd by that viſible Impediment; and never deſigned at firſt, or procur'd by the Artiſt. The Application of which Reſemblance is too obvious to need a Comment, and naturally enforces what I am now contending for.

(6.) 'Tis evident, that all the little Planets about *Jupiter* move in Orbits truly circular, without any conſiderable Degree of Eccentricity: On which Account, the preſent *Hypotheſis* appears to be far from contrary to the Frame of Nature; nay, to be no other with regard to the *Primary*, than is, *de facto*, true in this *Secondary* Syſtem; and from that ſo remarkable a Parallel, may the more eaſily be believ'd to have once been the Caſe of this alſo.

(7.) 'Tis evident, that in caſe the Comet's Attraction were the Cauſe of the Eccentricity

of the Planets, they would uſually draw them alſo from the Plains of their former Orbits, and make them inclin'd or oblique to one another: So that where the Orbits are Eccentrical, 'tis probable, according to the preſent *Hypotheſis*, the Plains muſt be different, and oblique to each other; and where the Orbits are circular, the Plains of the ſeveral Orbits muſt be as they were at firſt, or, in Probability, coincident. Now this is really obſervable in the two Syſtems laſt mention'd: The Plains of the circular Orbits about *Jupiter* being nearly, if not exactly coincident, and thoſe of the Eccentrical ones about the Sun being oblique to each other. Which Obſervation is no inconſiderable Argument, that originally the Planetary Orbits were exactly circular; as well as that at the ſame time they were every one in the ſame common Plain, or in Plains coincident with one another. Which laſt mention'd *Hypotheſis*, (to ſpeak a word or two of that by the way) tho' I look upon it as not unlikely, and ſuch an one as ſeveral of the foregoing Arguments might be apply'd to, and do plead for; yet I ſhall not inſiſt farther upon it here; both becauſe the following Theory does not directly depend upon it in any Part; and becauſe the moving in different Plains does not cauſe any ill Effects, or notable Inconveniencies, in the Syſtem of Nature, as we have ſhewn the Eccentricity does; and ſo cannot with the ſame Clearneſs and Force be urg'd againſt its being the original Workmanſhip of God, as I have above diſcours'd in the other Caſe. Only this I may ſay, That ſeeing the Planetary Orbits are ſtill almoſt in the ſame Plain; ſeeing the Comets Paſſages are capable of cauſing ſuch little Obliquity; nay, were they originally in the ſame Plain, in

Length of Time, by the fore-mention'd Attraction, they muſt, without a Miracle, have been drawn from their common Planes, and been oblig'd to revolve in thoſe different from each other, as they now do; and ſeeing withal that *Eccentricity* and *Obliquity*, as *Uniformity of Diſtance from the Center*, and *Coincidence of the Planes*, go together in the World, as has been juſt before noted; this *Hypotheſis* of the original Coincidence of the Planetary Planes, is an Opinion neither improbable, nor unphiloſophical; and only a *little leſs* evident than what this Propoſition was to prove, *viz.* That the Primary Orbits of the Planets were perfect Circles; but otherwiſe very much a-kin, and exceeding correſpondent thereto; they at once receiving Light from, and affording Light to one another mutually.

VIII. The Ark reſted on one of the *Gordyean* Mountains, which ſeparate *Armenia* from *Meſopotamia* and *Aſſyria*.

This is the commonly receiv'd Opinion, from which at preſent I ſee no Reaſon to recede. The Arguments uſually urg'd for it, are thus briefly repreſented by the Learned *Cellarius*, in his *Geographica antiqua*. L. 3. c. 11.

" *Strabo* ſays, that *the Chain of Mountains which* L. 11.
" *ran Eaſtward from* Cappadocia *and* Comagena, p. 359.
" *are firſt called* Taurus; *theſe ſeparate* Sophene,
" *and the reſt of* Armenia, *from* Meſopotamia;
" πνὲς ὄ Γορδυαῖα ὄρη καλοῦσι, *but ſome call 'em the*
" Gordyean *Mountains*. The Meaning of which
" Paſſage ſeems to be, that the *Gordyean* Mountains are contiguous to *Taurus*, or are a Part
" of it; for by this Explication, the receiv'd

" Opinion that the Mountains of *Ararat*, on which
" *Noah*'s Ark reſted, are the *Gordyean* Moun-
" tains, is ſignally confirm'd; becauſe *Noah*, with
" his Sons, deſcending from thence, came into
" *Meſopotamia*, the firſt Seat of the Patriarchs [af-
" ter the Flood.] And that *Ararat* belongs to
" *Armenia*, is the Opinion and Affirmation of al-
" moſt all Antiquity. Not to mention *Abydenus*
Præp. ix. " and *Megaſthenes*, whoſe Words *Euſebius* quotes;
12, 19. " *Beroſus*, the *Chaldean* in *Joſephus*, ſpeaking of
Antiq. x. " *Senacherib*'s paricide Sons, ſays, εἰς τὴν Ἀρμενίαν
2. " ἀπῆραν, *they fled into Armenia*; for which *Iſaiah*
Iſaiah " ſays, *they fled into the land of Ararat*, which
xxxvii.38. " the Septuagint renders, εἰς Ἀρμενίαν, agreeably
" to *Beroſus*. The vulgar Interpreter alſo ren-
" ders *Gen.* viii. 4. *Montes Armeniæ*, and 2 *Kings*
Lib. 4. " xix. 3. *Terram Armeniorum*. So *Alcimus Avi-*
ver. 537. " *tus*, *Armeniæ celſis inſtabat montibus Arca.*
" Let us next enquire in what Part of *Arme-*
" *nia* this Mountain is, whereon the Ark reſted.
In Iſa. " St. *Jerom* ſays, Ararat *is a Champaign Country*
xxxvii. " *in* Armenia, *thro' which* Araxes *runs*, *being*
" *very fruitful*, *and at the foot of Mount* Taurus,
" *which extends it ſelf thither.* I approve not of
" his placing the Courſe of *Araxes* under Mount
" *Taurus*, ſince they are at a great Diſtance from
" each other: But I allow what he ſays after-
" wards, *that the Ark was carried to the higheſt*
" *Parts of Mount* Taurus. All *Armenia* is ra-
" ther the ſame with *Ararat*; or, if a Part of
" *Armenia*, then the *Southern* Part, which lies
" under Mount *Taurus*, from which the River
" *Araxes* is far diſtant, according to *Strabo*, *Pliny*,
" and *Ptolemy*. By the Mountains of *Ararat*, ve-
" ry many underſtand the *Gordyean* Mountains,
" which either are a Part of *Taurus*, or adjoin-
" ing to it. *Beroſus*, ſpeaking of the Deluge, and

" of

" of thoſe few that were preſerved in the Ark, " ſays, λέγ⸗ τὸ τῆ̃ πλοίε ἐν Ἀρμωνίᾳ πρὸς τῷ ὄρει τῷ " κορδυαίων ἔτι μέρ⸗ τι εἶ⸗. *'Tis reported, that a Part* " *of that Veſſel* [the Ark] *is yet to be ſeen on the* " *Mountains of the* Cordyeans. And in the *Tar-* " *gum* of *Onkelos* upon *Gen.* viii. 4. the Mountains " of *Ararat* are render'd *the Mountains of* Kardu " in the *Chaldee*; and the other *Targum*, which " goes under the Name of *Jonathan*, calls 'em " *the Mountains of Kadrun*, by a *Metatheſis*, ex- " cept there has been a Miſtake in the Tran- " ſcribers. Thus alſo *Epiphanius*; ἔτι καὶ τὰ λείψανα " τῆς τῆ̃ Νῶε λάρνακ⸗ δείκνυ⸗ ἐν τῇ τῶν Κορδυέων χώρᾳ. " *The Reliques of* Noah's *Ark are ſhewn in the* " *Country of the* Cordyeans, *even at this Day.* " And *Elmacinus*, the *Arabian*, ſpeaking of *Hera-* " *clius*, ſays, *He aſcended up into the Mountain* " Cordi, *and there ſaw the Place of* [Noah's] *Ark.* " And ſo much may ſuffice for the Mountains of " *Ararat*, and the Place where the Ark reſted. " *Bochart*, in the 1ſt Book and 3d Chapter of " his *Geographia Sacra*, has more to the ſame " Purpoſe.

Apud Joſeph. Antiq. i. 4.

Hæreſ. xviii. extrem.

Hiſt. Saracen. i. 1.

To theſe I ſhall add two other Arguments. (1.) The Ark reſted upon that Mountain which then was the higheſt in the World: But thoſe Mountains which lye on the *North* of *Aſſyria* (that is, the *Gordyean* Mountains) are *now* the higheſt in the whole World, as † *Theodoret* and * *Haitho* the *Armenian* report; but were

† Theodoret. in Eſai. xiv. 13. Ὄρος ὑψηλὸν ἔφη λέγ⸗ βορρᾶθεν Ἀσσυρίων καὶ Μήδων. ἀπὸ τούτων τὰ Σκυθικὰ διορίζειν ἔθνη, πάντων τῶν κατ' αἰκουμένην ὀρέων ὑψηλότατοι.

* In Armeniâ eſt altior mons, quàm ſit in toto orbe terrarum, qui Arath vulgariter nuncupatur; & in cacumine illius montis arca Noh æ poſt diluvium primò ſedit. Et licet

more certainly ſo at the Deluge, as will be hereafter prov'd, whatever Pretence any other may at preſent make. All therefore I am here to make out is, That the Ark muſt have reſted on the higheſt Mountain in the World; which is eaſily done: For the Waters covering the Tops of all the higheſt Hills on the Face of the Earth 15 Cubits, or about 27 Feet; and yet the Ark reſting the very firſt Day of the Abatement of the Waters, above two Months before the Tops of the other Mountains were ſeen (as will be prov'd hereafter:) 'Tis evident, that the Ark reſted on the higheſt Hill in the World at that Time, and therefore reſted on the *Gordyean* Mountains, which (as the forenam'd Authors ſay) are ſtill the higheſt in the whole World.

See Bochart. Phaleg. l. 1. c. 3.

(2.) 'Tis ſaid, *Gen.* xi. 2. that the firſt Removal of the Fathers after the Flood towards the Land of *Shinar*, was *Mikkedem*, *Eaſtward*. For tho' moſt Tranſlators render it *from the Eaſt*, † yet I rather ſuppoſe that the true Meaning is *towards the Eaſt*, or *Eaſtward*; ſince *Mikkedem*, in Scripture, is always uſed in this latter Senſe, and never in the former. And particularly, in *Gen.* xiii. 11. 'tis join'd in this Senſe with the ſame Verb, as in the Place before us. *And Lot journeyed Eaſtward*, &c. For that he journeyed not *from the Eaſt*, appears from this very Chapter; where

---

propter abundantiam nivium, quæ ſemper in illo monte reperiuntur tam hyeme quam æſtate, nemo valet aſcendere montem illum; ſemper tamen apparet in ejus cacumine quoddam nigrum, quod ab hominibus dicitur eſſe arca. *Hiſtor. Oriental.* c. 9.

† *See* Gen. ii. 8 & iii. 24. & xii. 8. & xiii. 11. Numb. xxxiv. 11. Joſh. vii. 2. Judg. viii. 11. Iſa. ix. 12. Ezek. xi. 23. Jon. iv. 5. Zech. xi. 4.

we

we find his Road lay from *Bethel* and *Hai*, in the Tribe of *Benjamin*, towards the Plains of *Sodom*; and ſo he travelled *South-Eaſt*. And if the Ark reſted on the Mountains between *Meſopotamia* and *Armenia*, the Journeying of the firſt Patriarchs after the Flood, from thence to the Land of *Shinar*, was towards the *South-Eaſt* alſo.

Scholium. In this Place, I cannot but propoſe a Conjecture I have for ſome Time had in my Mind about the Peopling of *China*; which I think may deſerve to be conſider'd; and 'tis This; That the *Chineſe* are the Offspring of *Noah* himſelf after the Flood, and not deriv'd from any of his other Poſterity, *Shem*, *Ham*, or *Japhet*, as the Inhabitants of the reſt of the World are. This Conjecture depends on the following Reaſons.

I. The Account of the Poſterity of *Shem*, *Ham*, and *Japhet*, and of their Diſperſion, gives no Hint of any that went ſo far *Eaſt* as *China*, as I think is plain from the beſt Expoſitions of the 10th of *Geneſis*, where that Matter is chiefly treated of.

II. Since the Diſperſion of the Poſterity of *Shem*, *Ham*, and *Japhet*, appears to have begun about *Babylon*; a Country ſo remote as *China* could not be ſo ſoon reach'd and peopled, as the prodigious Numbers of its Inhabitants at preſent ſhew it to have been. The neareſt Regions muſt have been firſt and moſt fully peopled; and the remoter not till Men were increas'd ſufficiently to require new Habitations; and accordingly, it has happen'd in the Countries of *Europe*, *Africa*, and the *Weſtern* Parts of *Aſia*; to which, I ſuppoſe, the Diſperſion begun at *Babel* is confin'd. But this is a

ſuffi-

ſufficient Proof, that ſo very large and prodigiouſly populous a Country as *China*, could not be of ſo late an Original, as it muſt be in caſe the *Chineſe* are deriv'd from this Diſperſion.

III. The Sacred Hiſtory, ſoon after the Flood, confines it ſelf within the then known World: (Which, I think, did not include *China*, no more than *America*, and which is ſtil'd the *whole Earth* very often in Scripture) and at the ſame Time ſays not a word of the great Father of the whole Race of Mankind, *Noah*, exeepting the Number of Years he liv'd. Now this is, I think, a kind of Intimation, that *Noah* had no Share in the Actions related in the Sacred Hiſtory; and ſo, by a fair Conſequence, was probably plac'd in *China*, a Region out of the Compaſs of the then known World.

Gen. ix. 19.

IV. This Argument appears the more probable, becauſe the Scripture tells us, as we have now ſeen, that all Mankind *journeyed Eaſtward* after the Flood. And tho' the Poſterity of *Shem*, *Ham* and *Japhet*, ſtopt in the Land of *Shinar*, and there undertook to build a City, and a Tower; yet 'tis probable that *Noah* himſelf, together with his Wife and his young *Poſtdiluvian* Poſterity, would not join with the reſt of the World in that Undertaking, (which appears to be diſpleaſing to God, ſince he miraculouſly defeated their Enterprizes,) but proceeded ſtill in their Journey *Eaſtward*, till they came into *China*.

Vide Syncel. *p.* 30, 31.

V. This is farther confirm'd by the ancient *Chaldean* Tradition concerning the Deluge, which informs us, that *Xiſûthrus* (ſo *Noah* is there call'd) coming out of the Ark after the Deluge, with his Wife and Daughter, and the Pilot of the

the Ark, offer'd Sacrifice to God; and then both he and they diſappear'd, and were never ſeen again: And that afterwards *Xiſûthrus*'s Sons journeyed towards *Babylonia*, and built *Babylon*, and ſeveral other Cities.

VI. The *Chineſe* Language and Writing are ſo entirely different from thoſe with us, which the Confuſion at *Babel* introduc'd, and are at ſo vaſt a Diſtance from them, that I think they cannot well be deriv'd from thence, nor from any of thoſe Patriarchs whoſe Poſterity was there divided into the ſeveral Parts of the World. All our Languages conſiſt of Words and Syllables, made by a few Letters: which is wholly different from the way of expreſſing entire Sounds, and of varying the Senſe by Tones or Accents among the *Chineſe*. All which Circumſtances perſuade me, that their Original is different from ours: And that as we are the Offspring of *Shem*, *Ham* and *Japhet*, whoſe Sons were ſcatter'd from *Babel*; ſo are they of *Noah*, who was no way intereſted in that Diſperſion, or in thoſe Languages which are deriv'd therefrom.

VII. The Learned Sciences ſeem to have been anciently much better known in *China*, than in theſe Parts of the World: Their Government and Conſtitution much firmer, and more laſting than Ours: Their moſt Ancient Hiſtories more authentick and certain than Ours; (excepting thoſe of more than bare human Original.) All which Things make one ready to imagine, that as, 'tis probable, *Noah* might be much more wiſe and learned than any of his Sons; ſo all thoſe Settlements, Laws and Traditions, which are deriv'd from him, are remarkable Effects and

and Teſtimonies of the ſame: And therefore that in *China* (where theſe Effects and Teſtimonies chiefly appear) all thoſe Prerogatives are owing to *Noah*, their original Founder, and no other.

VIII. There are ſome Reaſons to believe, that the *Chineſe* mean no other by their firſt Monarch *Fohi*, than *Noah* himſelf. For, 1. The Beginning of their Hiſtory with the Reign of *Fohi*, will, if the ſecond and third Families of their Kings were collateral, (as I have elſewhere ſhown they were) be coincident, even from the *Hebrew*, which, about the 235th Year after the Deluge, and conſequently the End of *Fohi*'s Reign will be coincident with the Time of *Noah*'s Death. 2. The *Chineſe* Hiſtories ſay, that *Fohi* had no Father; which agrees well enough with *Noah*, becauſe the Memory of his Father might be loſt in the Deluge, or they could trace his Genealogy no higher, and ſo Occaſion was given to this Fable, that he had no Father at all. 3. The ſame Hiſtories affirm, that *Fohi*'s Mother conceiv'd him as ſhe was encompaſs'd with a *Rainbow*; which ſeems an imperfect Tradition concerning the firſt Appearance of the Rainbow to *Noah* after the Flood. 4. The Character and Circumſtances, and Appellation of *Fohi* among the *Chineſe*, agrees exactly with what the Scriptures affirm of *Noah*. *Fohi*, ſays *Le Compte*, *the firſt Emperor of* China, *carefully bred up ſeven Sorts of Creatures, which he uſed to Sacrifice to the Supreme Spirit of Heaven and Earth. For this Reaſon, ſome call him* Paohi, *that is, Oblation. Noah*, ſays *Moſes*, took into the Ark *of every clean beaſt by ſevens, the Male and his Female.* And after the Flood, *Noah builded*

Short View of the Chronol. of the Old Teſt. p. 62, &c. Gen. ix. 28. *Martinii Hiſt. Sinic.* p. 21. Ibid. Gen. ix. 12,--17. *Memoirs of* China, p. 313. *and* Couplet's Confucius Proem. *p.* 38, 76. Gen. vii. 2, 3, 9.

builded an Altar unto the Lord, and took of every clean beaſt and every clean fowl, and offer'd burnt-offerings on the Altar. Gen. viii. 20.

5. The *Chineſe* Hiſtories affirm, that *Fohi* ſettled in the Province of *Xenſi*, which is the moſt *North-Weſt* Province of *China*, as was natural to expect if he journeyed from the Ark, or from *Meſopotamia*. From all which Arguments, I think it is very probable, that *Fohi*, the Founder of the *Chineſe* Monarchy, was the ſame Perſon with *Noah* in the Scripture, and conſequently, that the *Chineſe* are the Offspring of *Noah*. *Martinius ubi prius.* & Couplet *Chronol. in* Fohi.

IX. All this will be farther confirm'd, when we ſhall have ſhewn hereafter, that the Current of the Waters of the Deluge would carry the Ark a long way from *Eaſt* to *Weſt*, and that *China* lies juſt *Eaſt* from the *Gordyean* Mountains; ſo that *Noah*, before the Flood, muſt have liv'd in thoſe *Eaſtern* Parts, and probably in no other than *China* it ſelf. Since therefore 'tis ſo likely, that *Noah* liv'd in *China before* the Deluge, 'tis no wonder that he return'd to *China* again, and repeopl'd the ſame with his own Offspring born *after* the Deluge; and that from this Difference in Original proceeds all that Difference in other Things, which is ſo remarkable (if compar'd with the reſt of the World) in that Ancient, Numerous and Learned Nation.

X. The

X. The Deluge began, according to the modern *Hebrew* Chronology, on the 17*th* Day of the 2*d* Month from the Autumnal Equinox, (or on the 28*th* of *Nov.* in the *Julian* Stile, extended backward) in the 2365*th* Year of the *Julian* Period, and in the 2349*th* Year before the Chriſtian *Æra*.

A Chronological Canon.

	Y.	M.
I. From the Beginning of the *Moſaick* Creation, till the Autumnal Equinox next after the Creation of *Adam*	6	0
II. From the Autumnal Equinox next after the Creation of *Adam*, till the Autumnal Equinox in the Year of the Deluge	1656	0
III. From the Autumnal Equinox in the Year of the Deluge, till the Departure of *Abraham* out of *Haran*	427	6½
IV. From *Abraham*'s Departure out of *Haran*, till the *Exodus* of the Children of *Iſrael* out of *Egypt*	430	0
V. From the *Exodus* of the Children of *Iſrael* out of *Egypt*, till the Foundation of *Solomon*'s Temple	479	1
VI. From the Foundation of *Solomon*'s Temple, till its Conflagration	424	3
VII. From the Conflagration of *Solomon*'s Temple, till the Beginning of the Chriſtian *Æra*	586	6
VIII. From the Beginning of the Chriſtian *Æra*, till *Octob.* 11*th* this Year	1723	9½
Sum of all	5731	0
From the 1ſt Day of the Deluge, till the 28th of *November*, this very Year, 1724.	4072	3½

For

For the Proof of the ſeveral Parts or Periods of this *Canon*, I muſt refer my Reader to my *Short View of the Chronology of the Old Teſtament*. Only I muſt add a Word or two concerning the 3*d* and 7*th* Periods; the former being a Year more, and the latter a Year leſs than I had before ſtated 'em. 1. Whereas the Scripture reckons 427 Years from the Flood till *Abraham*'s Departure out of *Haran*, about the Vernal Equinox; I, in my Book, computed theſe Years from the Vernal Equinox *in* the Year of the Deluge, but now ſee Reaſon to compute 'em from the Vernal Equinox *following*; ſince this latter was but four Months after the End of the Flood, or Coming out of the Ark, whereas the former Vernal Equinox was eight Months before the Flood ended. 2. I allowed 587 Years and four Months, for the Period from the Conflagration of *Solomon*'s Temple, till the Beginning of the Chriſtian *Æra*; but now I ſtate it at 586 Years, and four Months. For having, ſince the Publiſhing of my Chronology, diſcover'd, that according to the true and genuine Method of the *Canon*, the Regions therein mention'd, begin a Year later than according to the Method which I followed in my Book; I am thereupon obliged, in connecting the ſacred Chronology with the prophane, to fix the Conflagration of *Solomon*'s Temple a Year later, whereby the Period from thence to the Chriſtian *Æra*, becomes a Year leſs than I had at firſt ſtated it: But the whole Sum, by the equal Addition and Subſtraction, is ſtill the ſame that it was before.

Vid. *Short View*, p. 70. Gen. xii. 40, 41.

Gen. viii. 14, 15. *Short View*, Hyp. 6. p. 8.

Sh. View, p. 14.

N. B. The ſame Deluge began, according to the truer Chronology, from the *Samaritan* Pentateuch,

tateuch, *Joſephus*'s ancient *Hebrew*, and the LXXII. ancient *Greek* Copies, on the ſame 17th Day of the 2d Month from the Autumnal Equinox, (or on *December* the 2d, in the *Julian* Stile extended backward;) in the 1788th Year of the *Julian* Period, and in the 2926th Year before the Chriſtian *Æra*.

This has been proved, at leaſt within a very few Years, in *My Eſſay towards reſtoring the true Text of the Old Teſtament*, lately publiſh'd, under *Prop.* XI. to which I muſt refer the Reader.

N. B. Before the Reader proceed to the next *Hypotheſis*, He is to obſerve that it is not of my Compoſure; but is a ſhort tho' Excellent Diſſertation of my Learned Friend Mr. *Richard Allin*, Fellow of *Sidney*-College; with which, at my Deſire, He has been pleas'd to permit me to enrich the later Editions of my Theory.

XI. The moſt Ancient *Civil* Year in moſt Parts of the World *after* the Deluge; and alſo the *Tropical Solar* and *Lunar* Year *before* the Deluge, contain'd juſt 12 Months of 30 Days apiece, or 360 Days in the whole.

Firſt, I ſhall endeavour to prove, that the moſt Ancient Year in *Civil* Uſe almoſt throughout the World, for ſeveral Ages *after* the Deluge, contain'd exactly 360 Days, or 12 Months of 30 Days apiece. *Secondly*, That *before* the Deluge, not only the *Civil* Year, but alſo the *Tropical Solar*

lar Year, wherein the Sun paſſes through the Ecliptick, to the ſame Point from whence it began; and likewiſe the *Lunar* Year, conſiſting of 12 Synodical Months, each from New-Moon to New-Moon, or from Full-Moon to Full-Moon, were ſeverally juſt 360 Days long; and conſequently, that the *Lunar* Month was exactly 30 Days.

And, *Firſt*, I am to prove, that the moſt Ancient *Civil* Year and Month were of this Length, in moſt Places, *after* the Deluge.

(1.) This appears by that Teſtimony menti-on'd in *Georgius Syncellus*, (*a*) which informs us, that the additional five Days, even amongſt the *Egyptians*, one of the moſt Ancient and Learned Nations in the World, were not originally added to the 360 Days, or 12 Months of 30 Days apiece, of which their Year conſiſted, but were introduc'd about a thouſand Years after the Deluge: So that till that Time, their Ancient Year appears to have been no more than 360 Days.

Vid. Marſham Secul. X. Tit. *Anni Reformatio.*

(2.) This Argument, from the latter Introduction of the five Additional Days, receives ſome Confirmation from the *Place* they always poſſeſs'd in the Year, even after they were introduced in the *Egyptian*, and thence in the *Nabonaſſarean* Form; which was at the *End* of the whole Year, as ἡμέραι ἐπαγόμεναι, *additional* or *ſu-*

(*a*) Syncel. *pag.* 123. Οὗτος [Aſeth. *ſeu* Aſſis, Rex] προσέθηκε τῷ ἐνιαυτῷ τὰς ἐπαγομένας, τὸ ὅπερ αὐτὸς, ὥς φασὶν, ἐχρημάτισεν τῷ ἡμερῶν ὁ Αἰγυπτιακὸς ἐνιαυτὸς, τῷ μόνον ἡμερῶν πρὸ τούτου μεμυθολόγηται.

perabundant Days. Which Manner of adding them at the Year's End, ſeems naturally to imply, that the ſeveral Months had been ſo long ſtated at 30 Days apiece, and ſo the whole Year at juſt 360 Days, that they could not think fit to alter 'em, but only ventur'd to add five Days at the End of the Year; which indeed were ſcarce accounted a Part of it: Still implying and ſuppoſing, that the ancient and ſtated Year was made up of 12 Months of 30 Days apiece, or of 360 Days in the whole, and no more.

(3.) And what is but conjectur'd at in the laſt Argument, is particularly aſſerted in a famous Tradition in (*b*) *Plutarch*, from whence it appears, that the Ancient *Egyptian* Year was no more than 360 Days; and that the five *Epagomenæ* were not look'd upon as proper Parts either of the Year, or of any of its Months, but as Days belonging to the Nativities of five ſeveral *Egyptian* Deities, who, as this preſent Piece of Mythology ſuppoſes, were *to be born neither in any Year, nor in any Month*, and that thereupon, theſe five Days were added to the Ancient Year; which therefore, before this Addition was made, contained no more than 360 Days.

(4.) That the moſt Ancient *Chaldean* or *Babylonian* Year was juſt 360 Days, appears by

---

(*b*) Plutarch de Iſide & Oſiride, Operum Moral. *p.* 355. Τῆς Ῥέας φασι, κριθέντα τῷ Κρόνῳ συγγενομένης, αἰδόμενον ἐπαράσασθαι τὸν Ἥλιον αὐτῇ, μήτε μηνὶ, μήτε ἐνιαυτῷ τεκεῖν· ἐρῶντα δὲ τὸν Ἑρμοῦ τοῦ Θεοῦ συνελθεῖν, εἶτα παίξαντα πεττοῖς τὸν Σελήνην, καὶ ἀφελόντα τὴν ἑβδομηκοστὸν, ἐκ πάντων ἡμέρας πέντε συνελθεῖν. καὶ τὰς ἐξήκοντα καὶ διακοσίας ἐπάγειν, ἃς Θεῶν γενεθλίους ἄγουσι.

that Number of Furlongs for the Compaſs of the Walls of *Babylon*, which, as (*c*) *Q. Curtius* and (*d*) *Tzetzes* affirm, were built in a Year, a Furlong each Day. For tho' (*e*) ſome, who wrote about the Time of *Alexander* the Great, and ſeem to have known either that the Solar Year was about 365 Days long, or that the Aſtronomical Year at *Babylon* it ſelf was of that Length, do ſay, that the Compaſs of the Walls was 365 Furlongs; yet (*e*) *Cteſias*, who wrote before that Time, in the Reign of *Artaxerxes Memor*, ſays, with greater (*f*) Probability, that the Number of Furlongs was but 360. And ſince even thoſe later Writers add, that *Babylon* was as many Furlongs in Compaſs, as there were Days in the Year; 'tis more than probable, that they erroneouſly concluded from thence, that becauſe the Tropical Year (or the Aſtronomical Year of *Nabonaſſar*)

(*c*) *Q. Curt. lib.* 5. *cap.* 1. Singulorum ſtadiorum ſtructuram ſingulis diebus perfectam eſſe, memoriæ proditum eſt.

(*d*) Tzetz. Chil. ix. verſ. 563. *De Babylone.*

Ἐκπρεπεστάτην ἐν πάσαις καὶ ὡραίαν.

(*e*) Diodor. Sic. lib. 2. pag. 68. Περιβαλέτο τὸ τεῖχος τῇ πόλει [Babyloni] σταδίων τριακοσίων ἑξήκοντα, ——— ὡς φησι Κτησίας ὁ Κνίδιος· ὡς δὲ Κλείταρχος, καὶ τὸ ὕστερον μετ' Ἀλεξάνδρου διαβάντων εἰς τὴν Ἀσίαν τινὲς ἀνέγραψαν, τριακοσίων ἑξήκοντα καὶ πέντε καὶ τεσσαράκοντα, ὅπερ ἐστὶν ἴσον ἡμέρων εἰς τὸν ἐνιαυτὸν ὄντων, ἐπιλογισθὲν τὸν ἴσον ἀριθμὸν τῶν σταδίων ἐποίησαν. Vide & Tzetz. Chil. ix. verſ. 568, &c.

(*f*) Tzetz. Chil. ix. verſ. 579. ——φαίνεται δὲ Κτησίας
Τῷ Τζέτζῃ ἀληθέστερα συγγράφειν τῶν ἑτέρων,
Τέως εἰς ἅπερ ἔγραψε περὶ τῶν Βαβυλωνίων.
Τριακοσίων καὶ ἑξήκοντα σταδίων
Πᾶσαν αὐτῆς περίμετρον ὑπάρχειν διαγράφει·
Οἱ δ' ἄλλοι παρεκτείνουσι πλέον καὶ πλέον τούτου.

had 365 Days in it, therefore *Babylon* was 365 Furlongs in Compaſs. Thus then we ſee the Teſtimonies of ſeveral Authors, that the Walls of *Babylon* were as many Furlongs in Compaſs as there were Days in the Year; and that the oldeſt and beſt Teſtimony aſſerts, that they were 360 Furlongs in Compaſs: Wherefore it muſt be concluded highly probable at leaſt, that the moſt ancient *Babylonian* Year was exactly 360 Days long.

(5.) All this is more fully confirm'd by a contemporary Author, the Prophet *Daniel*, who liv'd and wrote in *Babylon* in the Reign of *Nebuchadnezzar* (g), who built thoſe Walls. For *Daniel*, by his *Time*, *Times and a half*, or three Years and a half, as we are ſure from St. *John*'s Expoſition of 'em, means 1260 Days; and conſequently by a ſingle *Time*, or one Year, means no more than 360 Days; according to the uſual Computation of the Age and Nation in which he liv'd.

Dan. xii. 7. Apoc. xii. 6, 14.

(6.) We find alſo ſeveral Footſteps and Remains of this old Year in the *Medo-Perſian* Monarchy, which ſubdu'd the *Babylonian*. As in the 360 Channels, which *Cyrus* cut, to make the River *Gyndes* fordable for his Army, when he went on his Expedition againſt *Babylon*: And (if *Joſephus* be not miſtaken) in the 360 *Satrapæ*, which *Darius* ſet over ſo many Provinces of his Em-

Herodot. i. 189.

Antiq. x. 12. p. 352. C.

(g) *Vide* Beroſ. apud Joſeph. Antiq. x. 11. p. 349. *F. G.* Et Abyden. apud Euſeb. Præpar. ix. 41. p. 457. *C.* Et Dan. iv. 30.

pire.

pire. Thus alſo the ſacred Hiſtorian aſſures us, that *King Ahaſuerus made a feaſt unto all his Princes and his ſervants many days, even* 180 *days*; *i. e.* a juſt Half-year's Feaſt, that Number being exactly half 360. Thus alſo the *Periodus Magorum*, mention'd by *Scaliger*, was 360,000 Years, *i. e.* Days, or a juſt *Millennium*. In all which Inſtances, a plain Reference is had to the Year of 360 Days, then in uſe. Eſth. i. 3, 4. Emend. l. 1. p. 19.

(7.) That the *Perſian* Year contain'd but 360 Days, is ſtill more evident from the Teſtimonies of (*h*) *Plutarch* and (*i*) *Q. Curtius*; who affirm, that the Number of the Royal Concubines to more than one of the *Perſian* Kings, was juſt 360. And we know both from Scripture and (*k*) *Herodotus*, that they went in conſtant Courſes to their Kings. And ſince their Number anſwers ſo exactly to the Days in the ancient Year, according to the other Teſtimonies: Since alſo a Year is ſo natural and obvious a Length for one of thoſe Courſes; Nay, ſince *Diodorus Siculus* (*l*) directly affirms, that the Royal Concubines were juſt as many as the Days of the Year; 'Tis plain, the *Perſian* Year had juſt 360 Days. Nay, even in much later Times, we find in the *Arabick* Hiſtorians, that *Ardſhir Ebn Ba-* Eſth. ii. 12, 13, 15. *Vid.* Wallifii Opus Arithmet. c. 31.

(*h*) Plutarch in Artaxer. Vitarum, pag. 1025. Ἑξήκοντα δὲ καὶ τριακόσιαι παρεδέφοντο κάλλει διαφέρουσαι παλλακίδες.

(*i*) *Q. Curt. lib.* 6. *cap.* 6. Pellices 360, totidem quot Darii fuerant, Regiam implebant.

(*k*) Herodet. iii. 69. Ἐν σειλεσπῇ δὲ δὴ γυναῖκες φοιτέουσι τοῖς Πέρσῃσι.

(*l*) Diodor. Sic. lib. 17. p. 603. Τὰς παλλακίδας ὁμοίως τῷ Δαρείῳ σεμνῆς, ἃς μὲν ἀριθμὸν ἔσας οὐκ ἐλάττους τῶν καθ' ἑκαστον ἡμερῶν.

bec, who was King of *Perſia* in the third Century of Chriſtianity, was the Author of the Play which we call *Tables*: In which he appointed twelve Houſes, or *Areolæ*, to correſpond to the twelve Months of the Year, and thirty *Calculi*, or Tablemen, to anſwer to ſo many Days in every Month. A plain Inſtance (if not of the then preſent Length of the *Perſian* Year and Months, yet at leaſt) of the Tradition they ſtill retain'd, that originally the *Perſian* Year was juſt 360 Days, containing twelve Months of thirty Days apiece.

(8.) There is alſo no ſmall Probability, that the moſt ancient Year of the *Mexicans* in *North-America* (who ſeem to have had their Original from ſome of the *Eaſtern* Nations) was alſo exactly 360 Days. This People (as *Joſeph Acoſta*, amongſt others, informs us) "divided their Year into "Months, to [each of] which they gave 20 "Days, *wherein the 360 Days are accompliſhed, "not comprehending in any of theſe Months the "5 Days that remain and make the Year perfect. "But they did reckon them apart at the End of the "Year, and called them Days of Nothing: During "which, the People did not any thing*; neither went "they to their Temples, but occupied themſelves "only in viſiting one another, and ſo ſpent the "Time. The Sacrificers of the Temple did likewiſe ceaſe their *Sacrifices*." Since then the *Mexicans*, even till theſe later Times, eſteem'd as nothing thoſe 5 Days, that were added to the other 360 at the End of the Year, and accordingly ſpent them in mere Idleneſs; 'tis very probable they did this, to ſignify, that thoſe additional Days were not to be look'd upon as any real Part of the Year, as they certainly were not

Natural and Moral Hiſt. of the Indies l. 6. c. 2.

not of any of its Months: Or, at leaſt, to ſignify, that they did *not originally* belong to the Year, but were added to it in later Times, to make it more agreeable to the Solar Year. And if ſo, it muſt be allow'd, that the primitive Year of the *Mexicans* contain'd juſt 360 Days, and no more.

(9.) The only Year among the ancient *Greeks*, and the Nations deſcended from them, that can come in Competition with this Year of 360 Days, is the Tropical Year, or a Year made very nearly equal to the Tropical by Cycles of Years, or proper Intercalations of Months or Days in certain revolving Periods. And that this Year was not originally in Civil Uſe amongſt 'em, appears very probable from the moſt ancient Manner of determining the Seaſons of the Year, which was not done by the Names of the Months and Days of the Civil Year, but by the Heliacal Riſing and Setting of the fix'd Stars, as is well known to all that are converſant in the Old Poetry and Aſtronomy. Now if the Tropical Year, or a Year made equivalent to it by proper Intercalations had been the Civil Year; it can hardly be imagin'd, that the eaſy and obvious Method of reckoning the Seaſons by the Months and Days of the Civil Year ſhould be entirely neglected; and ſo odd and troubleſome a Method as that of fixing 'em by the Heliacal Riſing and Setting of the fix'd Stars, ſhould be entertain'd in its ſtead. And in Confirmation of this Reaſoning, (*m*) *Diogenes Laertius* ſays, that

(*m*) Diog. Laert. i. 27. in vita Thaletis. Τάς τε ὥρας τῦ ἐνιαυτῦ φασὶν αὐτὸν ἑυρεῖν, καὶ εἰς τριακοσίας ἑξήκοντα πέντε ἡμέρας διελεῖν.

Thales the *Mileſian*, was the firſt of all the *Greeks* who diſcover'd the Length of the four Seaſons of the Year, and that the Tropical Year was 365 Days in Length. And tho' *Solon* is ſaid to have made the Month conformable to the Motion of the Moon at *Athens*; yet even he himſelf was utterly ignorant of the Tropical Year, if he really had that Diſcourſe with *Cræſus* King of *Lydia*, which (*n*) *Herodotus* relates he had. For he there ſuppoſes, that if the Year of 360 Days had an Embolimary Month of 30 Days added to it every other Year, it would thereby become equal to the Tropical Year. Whereby 'tis plain, he took the Tropical Year to be 375 Days long, which is above 9 Days and 18 Hours more than the Truth. Wherefore I think it may be concluded, that till after the Time of *Solon*, (or if this Diſcourſe with *Cræſus* be feign'd by *Herodotus* under *Solon*'s Name, then even till *Herodotus*'s Time, which is above 100 Years later) the ancient *Greeks* were generally ignorant of the true Length of the Tropical Year; and conſequently, the moſt ancient *Grecian* Year was not equal to the Tropical. And if ſo, the following ancient Teſtimonies will be undoubted Evidence, that it was of no other Length than 360 Days.

Vid. Arg. 16. infra.

(10.) That the ancient Year of *Greece*, *Lydia*, and the *Grecian* Colonies in *Aſia*, was juſt 360 Days, appears from ſeveral Teſtimonies. There

---

(*n*) Herodot. i. 32. Ἐς γὰρ ἑβδομήκοντα ἔτεα ἔρεον τὸ ζωῆς ἀνθρωπῳ προεθήκαμι. Οὗτοι ἔοντες ἐνιαυτοὶ ἑβδομήκοντα, παρέχουσι ἡμέρας διακοσίας καὶ πεντακισχιλίας καὶ διςμυρίας, ἐμβολίμου μηνὸς μὴ γινομένου. Ἐι δὲ δὴ ἐθελήσῃ τὸν τρίτον μηνὶ μακρότερον γίνεσθαι, ἵνα δὲ αἱ ὧραι συμβαίνωσι τοῖσι γινομένοισι ἐς τὸν θέον, μῆνες μὲν τοῖσι τὰ ἑβδομήκοντα ἔτεα οἱ ἐμβόλιμοι γίνονται τριήκοντα πέντε, ἡμέραι δὲ ἐκ τῶν μηνῶν τούτων, χίλιαι πεντήκοντα.

is

is a clear Intimation of this in the 360 Gods, which (as *Juſtin* (*o*) *Martyr* aſſures us) that moſt ancient Poet and Philoſopher, *Orpheus*, introduc'd; one, it ſeems, for every Day in the Year. The ſame Thing may be concluded from the before-cited Teſtimony of *Herodotus*, (of *Halicarnaſſus*, a *Grecian* City in *Aſia*) who introduces *Solon* diſcourſing with *Crœſus*, King of *Lydia*; where he ſays, That 70 *Years* (*viz.* either *Aſiatick* Years, even till *Herodotus*'s Time, or at leaſt *Lydian* Years in the Time of *Crœſus*) *contain'd* 25,200 *Days*: From whence it follows, that a ſingle Year, at the ſame Time, contain'd juſt 360 Days. This alſo is prov'd from the Riddle of (*p*) *Cleobulus*, Tyrant of *Lindus*, a City of *Rhodes*. *There is*, ſays he, *one Father who has* 12 *Children*, *and each of theſe has* 60 *Daughters*, 30 *of 'em white*, *and* 30 *of 'em black*; *all of 'em being immortal*, *and yet mortal continually*. By which all agree, that the Year is meant with its 12 Months, and each of their 30 Days and 30 Nights. Thus alſo (*q*) *Hippocrates* (of the Iſland *Cos*, in the *Egean* Sea) affirms, that 7 *Years contain* 360 *Weeks*, and ſo one Year 360 Days: And alſo that ſeven

---

(*o*) Juſtin Martyr de Monar. Dei, p. 104. Edit. Pariſ. Ὀρφεὺς, ὁ παρεισαγων τὸν τριακοσίους ἑξήκοντα Θεοὺς, ἐν τῷ διαθήκαις ὀνομαζομένῳ βιβλίῳ, &c. Vide & Theoph. ad Autol. l. 3. ſub initio.

(*p*) Diog. Laert. i. 91. in vita Cleobuli. Φέρεται δ' αὐτοῦ ἐν τοῖς Παμφίλης ὑπομνήμασι τὸ αἴνιγμα τοιόνδε.

Εἷς ὁ πατὴρ, παῖδες δ' ἦσαν δυώδεκα τοῦ δ' ἑκάστου
Παῖδες δὶς τριάκοντα, διάνδιχα εἶδος ἔχουσαι·
Αἱ μὲν λευκαὶ ἔασιν ἰδεῖν, αἱ δ' αὖτε μέλαιναι·
Ἀθάνατοι δ' τ' ἔασαι, πᾶσαι θνήσκουσιν ἅπασαι.

Ἔστι δ' ὁ ἐνιαυτός.

(*q*) Hippocrat. de Carnibus. Operum, p. 254. Edit. Genev. 1657. Ἐννέα δὲ μηνῶν καὶ δέκα ἡμερέων γόνος γίγνεται καὶ ζῇ, καὶ ἔχει τὸν ἀριθμὸν ἀδιεκτὶ ἐς τὰς ἑβδομάδας. Τέσσαρες δεκάδες ἑβδομάδων ἡμέραι εἰσὶν διηκόσιαι καὶ ἑβδομήκοντα,——

Months

Months are 210 *Days*; and 9 *Months and* 10 *Days, are juſt* 280 *Days*: And elſewhere, (r) that *nine Months contain'd* 270 *Days, according to the Computation of the* Grecians. From all which it is evident, that 30 Days were then allowed to a Month, and 360 Days to a Year.

(11.) That the moſt ancient Year at *Athens*, in particular, was 360 Days, and the Month 30 Days, appears from the very Original Conſtitution of the City of *Athens* it ſelf; which, as we learn from (ſ) *Harpocration*, (t) *Julius Pollux*,

---

Ἔχει δὲ καὶ τὸ ἐπιμήνιον πρεῖς δεκάδας ἑβδομάδων, ἐς δ τιὸ δεκάδα ἑκάστω ἑβδομήκοντα ἡμέραι πρεῖς δεκάδες δ ἑβδομάδων αἱ ξύμπασαι, δέκα καὶ διηκόσιαι——Ἔστι δὲ καὶ ἄλλο τεκμήριον, τοὺς ὀδόντας οἱ παῖδες ἑπτὰ ἐτέων διελδόντων πληροῦσι· Καὶ ἐν ἑπτὰ ἔτεσιν, ἔστι δὲ λόγῳ καὶ ἀριθμῷ ἀβελτέως, δεκάδες ἑβδομάδων ἑξήκοντα καὶ τριηκόσιαι.

(r) Idem, de Morbis vulgarib. L. 2. Sect. 3. Operum, pag. 1031. Εἰς ἑβδομήκοντα καὶ διηκοσίηστιν, οἱ ἐννέα μῆνες Ἑλλωικοὶ γίνον).

(ſ) Harpocratio voce Γεννῆ).——Διηρημένων——ἁπάντων τῶ πολιτῶ καταμέρη, τὰ μὲν πρῶτα καὶ μάλιστα μέρη ἐκαλοῦντο φυλαί. ἑκάστη δὲ φυλὴ βιχῆ διήρητο, καὶ ἐκαλεῖτο ἕκαστον μέρος τούτων, τριττύς, καὶ ἔθνος, καὶ φρατρία. Πάλιν δὲ τῶ φρατριῶν ἑκάστη διήρητο εἰς γένη τριάκοντα, ἐξ ὧν αἱ ἱερωσύναι ἑκάστοις προσήκουσαι ἐκληροῦντο.

(t) Jul. Pollux. lib. iii. Segm. 52. Φρατρίαι δ' ἦσαν δυοκαίδεκα, καὶ ἐν ἑκάστη γένη τριάκοντα, ἕκαστον ἐκ τριάκοντα ἀνδρῶν.

Et. lib. viii. Segm. 109, 111. Ὁ μὲν τῶ Τριττύος ἄρχων, τριττύαρχος ἐκαλεῖτο. Τριττύος δ' ἑκάστης γένη τρία [lege τριάκοντα, ut apud eund. lib. iii. Segm. 52. ſupra, & infra Segm. 111.] καὶ αἱ φυλαὶ, πρῶτος μὲν ὅτι Κέκροπος, ἦσαν τέτταρες, Κεκροπὶς, Αὐτόχθων, Ἀκταία, Παραλία· Ἐπὶ δὲ Κραναοῦ μετωνομάσθησαν, Κραναΐς, Ἀτθὶς, Μεσόγαια, Διακρίς· Ἐπὶ δὲ Ἐριχθονίου, Διὰς, Ἀθηναΐς, Ποσειδωνιὰς, Ἡφαιστιάς· Ἀπὸ δὲ τῶ Ἴωνος παίδων ὅτι Ἀρχθέως, Τελέοντες, Ὅπλητες, Αἰγικόρεις, Ἀργάδεις.——[Segm. 111.] ὅτε μέν τοι τέτταρες ἦσαν αἱ φυλαὶ, εἰς τρία μέρη ἑκάστη διήρητο· καὶ τὸ μέρος τοῦτο ἐκαλεῖτο τριττὺς, καὶ ἔθνος, καὶ φρατρία. Ἕκαστον δὲ ἔθνος γένη τριάκοντα, ἐξ ἀνδρῶν πρώτων ἃ ἐκαλεῖτο τριακάδες.

(u) Suidas in Γεννῆται. Αἱ δὲ φρατρίαι ἐκαλοῦντο τριττύες, ὅτι τεττάρων φυλῶν οὐσῶν, εἰς τρία ἑκάστη διεῖλον μέρη· τὰς

and

and (*u*) *Suidas*, *was divided* (to uſe the Words of the laſt) *into* 4 *Tribes*, *in Imitation of the* 4 *Seaſons of the Year*; *which Tribes contained* 12 φρατείας, *correſponding to the* 12 *Months*; *and each* φρατεία *had* 30 γένη, *anſwering to the* 30 *Days of each Month*; *ſo that all the* γένη *collected together*, *were* 360, *as many as the Days of the Year*. Which Words, in the Opinion of a Learned Man, do not only demonſtrate the true Length of the Primitive *Athenian* Year, but alſo give the Reaſon of it, from the original Conſtitution of the City it ſelf. That they demonſtrate the true Length of the Primitive *Athenian* Year, I acknowledge, is very plain: But (with Submiſſion) they are ſo far from deriving this Year, with its 4 Seaſons, 12 Months, and 30 Days in each Month, from the Conſtitution of the City, that they aſſert, on the contrary, the City was ſo divided and conſtituted in Imitation of the Year, and of its 4 Seaſons, 12 Months, &c. And if *Athens* was a Colony of the *Egyptians*, as ſeems exceeding probable, there can be no doubt but that the ancient Year of 360 Days and 12 equal Months, (the only Year and Months the *Egyptians* then made uſe of) gave birth to the aforeſaid Conſtitution of that City, and ſo were evidently the primitive Year and Months in civil Uſe at *Athens*.

Mauſſac. Not in Harpocrat. Γεννῆ.

Vide Marſham Sec. viii. Tit. *Egyptiorum Colonia*, & Tit. *Cecrops*.

(12.) That the *Athenians* retained the Year of 360 Days, and the Month of 30 Days, till after the Time of *Alexander* the Great, (either ſolely, as ſome Learned Men hold; or at leaſt, together with the *Lunæ-Solar* Year, as (*w*) *Theo-*

μὲν φυλὰς τέτταρας ποιήσαντες, ἀπομιμησάμενοι τὰς τῦ ἐνιαυτῦ ὥρας. Τὰς δὲ φρατρίας καὶ τριττῦς ιβ', καθάπερ αἱ μῆνες. Τὰ δὲ γένη λ' ἐν ἑκάστῃ φρατρίᾳ, καθάπερ αἱ ἡμέραι τξέ. [Lege cum Mauſſaco & Kuſtero, τξ'.]

(*w*) Theodor. Gaza de Menſib. cap. 9. Δίχως οὖν ἐθεο-

dorus

dorus Gaza was of Opinion) may be proved from the Books of ancient *Athenians*, yet extant, as well as by other Authorities. Thus (*x*) *Xenophon*, in his excellent Discourse of the Revenue of the State of *Athens*, always takes it for granted, that a Year did then contain 360 Days, and no more; as his late Translator, in his Notes, particularly observes and demonstrates. And (*y*) *Plato*, in his 6th Book *de Legibus*, would have *the Senate* of the New Commonwealth he is there describing, to *consist of* 360 *Men*, *to be divided into four Parts*, *of* 90 *each*; in this, alluding plainly to the Year of 360 Days, and its four Quarters. And (*z*)

ᾠρων [Athenienses] τ ἐνιαυτὸν, οὗ τ μὲν ἑξήκοντα καὶ τριακοσίαις ἡμέραις ὁριζόμενον τῷ ἡλίῳ, διὰ τοῦτο εἰς τοσαύτας μοίρας κατατομὴν τὸ λοξόν. Καὶ τούτου μέρος πέμπτον Ἀριστοτέλης εἶναί φησιν ἡμέρας ἑβδομήκοντα καὶ δύο. Τὸν δὲ τέτταρσι καὶ πεντήκοντα καὶ τριακοσίαις, τῇ σελήνῃ. Ἀναλογοῦν δὲ καὶ τοῦτ' μῆνας ἦγον, τοῦτ μὲν κατ' τ ἥλιον, τοῦτ δὲ κατ' τὴν σελήνην.

(*x*) Xenophon de Vectigalib. Operum p. 731. Edit. Basil. 1572. Ἦν γε μὴν τὸ τοιοῦτον συνῇ διακόσια καὶ χίλια ἀνδράποδα, εἰκὸς ἤδη ἀπ' αὐτῆς τ τοσούτου ἐν ἔτεσι πέντε ἢ ἓξ, μὴ μεῖον αὐτῇ ἑξακισχιλίων γίγνεσθαι. Ἀπόχρη μὲν τούτου τοῦ ἀριθμοῦ, ἵν' ὅσολον ἔχωσι καὶ αἰτιᾶται τ ἡμέραι φέρειν, ἡ μὲν τοιοῦτον καὶ ἑξήκοντα τάλαντα τοῦ ἐνιαυτοῦ. Upon which words, the *English* Translator has the following Note, p. 54. of the *Revenue of the State of* Athens. "*This Computation proves, that* "Xenophon *reckon'd* 360 *Days to the Year: For* 6000 Oboli "*multiplied by* 360, *make* 2160000 Oboli; *which Sum di-* "*vided by* 600, (*for* 600 Oboli *make a* Mina) *makes* 3600 "Minæ, *which divided by* 60 (*for* 60 Minæ *make a* Talent) "*reduces the whole Sum to* 60 Talents. *And the following* "*Computation of* 100 Talents *a Year, produc'd by* 10000 Oboli "*a Day, answers exactly to the former.*" *Xenophon*'s Words referr'd to in this Place, are these, *ibid.* Ὅταν δὲ μύρια ἀναπλήρωσι ἢ ἑκατὸν τάλαντα ἡ τοιοῦτον ἔσται.

(*y*) Plato de Legib. l. 6. p. 615. D. Edit. Lugdun. 1690. Βουλοῖτο δὲ ἂν μὲν τριάκοντα δωδεκάδας ἑξήκοντα δὲ καὶ τριακόσιοι γίγνοιντο ἂν φέροντες τ διανομαῖς. μέρη δὲ διανείμαντας τέτταρα κατ' ἐννενήκοντα τ ἀριθμόν.

(*z*) Aristot. Hist. Animal. vi. 20. Κύει δὲ ἡ μὲν Λακωνικὴ, *Aristo-*

Ariſtotle expeſly aſſures us, that the 5th Part of a Year was 72 Days, and the 6th Part was 60 Days; and ſo, by plain Conſequence, the whole Year muſt have been 360 Days. Laſtly, (*a*) *Pliny*, (*b*) *Laertius*, and (*c*) *Varro* inform us, that at *Athens*, *Demetrius Phalereus* (after the Time of *Alexander* the Great) had juſt 360 Statues erected to his Memory, *the Year at that Time* (as *Pliny* ſays expreſly, and the other two as expreſly as he, if their Teſtimonies be taken jointly) *not having any greater Number of Days in it than* 360.

(13.) This ancient Year of only 360 Days, appears alſo to have been the firſt *Roman* Year before *Numa Pompilius*'s Correction. For (*d*) *Plutarch*, in the Life of *Numa*, ſays, That "during the Reign of *Romulus*, ſome Months were "not 20 Days long, and others contain'd 35 Days "or more; the *Romans* not then ſufficiently underſtanding the true Length of the Solar or "Lunar Periods; *but only providing for this one*

ἕκτον μέρος τοῦ ἐνιαυτοῦ. Τοῦτο δέ ὅζιν ἡμέραι ἑξήκοντα —— Ἔνιαι ὃ χύσει τῶν κυκλῶν τὸ πέμπτον μέρος τοῦ ἐνιαυτοῦ· Τοῦτο ὃ ὅζιν ἡμέραι ἑβδομήκοντα καὶ δύο.

(*a*) *Plin. Hiſt. Nat.* xxiv. 6. Nullique arbitror plures ſtatuas, dicatas, quam Phalereo Demetrio Athenis, ſiquidem 360 ſtatuere, quas mox laceraverunt, nondum anno hunc numerum dierum excedente.

(*b*) Diog. Laert. v. 75. in vita Demetrii. Καὶ εἰκόνων ἠξιώθη χαλκῶν ἑξήκοντα πρὸς τριακοσίαις.

(*c*) *Varro apud Nonium.*

Hic Demetrius æreas tot aptu'ſt.
Quot luces habet annus abſolutus.

(*d*) Plutarch. Vitarum, p. 71. Ῥωμύλου μὲν φασὶν οἱ μῆνας ἀλόγως ἐχρῶντο τοῖς μησὶ καὶ ἀτάκτως, τοὺς μὲν ἐλάττους εἴκοσι ἡμερῶν, τοὺς δὲ πέντε καὶ τριάκοντα, τοὺς δὲ πλείονας λογιζόμενοι, τὴν δὲ γινομένης ἀνωμαλίας περὶ τὴν σελήνην καὶ τὸν ἥλιον ἔννοιαν οὐκ ἔχοντες, ἀλλ' ἐν μόνῳ φυλάττοντες μόνον, ὅπως ἑξήκοντα καὶ τριακοσίων ἡμερῶν ὁ ἐνιαυτὸς ἔσαι.

"thing,

" *thing, that the whole Year ſhould contain juſt* " 360 *Days.*

(14.) That this was the Primitive *Roman* Year, will appear very probable alſo from the *Julian* Calendar it ſelf, which intercalates the Biſſextile Day immediately after the *Terminalia*, the (*e*) laſt Day of the ancient Year; that is, immediately before the 5 laſt Days of *February*, the laſt Month in the ancient Year: So that the 5 laſt Days of *February* every common Year, and the 6 laſt every Biſſextile Year, are to be reckon'd intercalary, or additional Days to the other 360. And indeed St. (*f*) *Auſtin*, ſpeaking of thoſe who reckon'd the *Antediluvian* Years to be no more than 36 Days, the 10th Part of the Lunar Year, which he ſuppos'd to be 360 Days; to which the $5\frac{1}{4}$ Days were afterwards added to fill up the Solar Year; directly ſays, that the *Romans* called *all* thoſe Five (or Six Days in a Biſſextile Year) *intercalary Days*. And tho' an intercala-

Vide Eryc. Putean. de Biſſexto, c. 4.

(*e*) *Varro de Linguâ Latinâ, lib.* 5. *cap.* 3. Terminalia, quod is dies anni extremus conſtitutus Duodecimus enim menſis fuit Februarius; & cum intercalatur, inferiores quinque dies duodecimo demuntur menſe.

(*f*) *Auguſtin. de Civit. Dei* xv. 12. Unum annum qualem nunc habemus, in decem partes illi dividebant, & eaſdem partes annos vocabant. Quarum partium habet unaquæq; quadratum ſenarium; eo quod Deus ſex diebus perfecerit opera ſua, ut in ſeptimo requieſceret. Sexies autem ſeni, qui numerus quadratum ſenarium fecit, triginta ſex dies fiunt; qui multiplicati per decem, ad trecentos ſexaginta perveniunt, id eſt, duodecim menſes lunares. Propter quinque dies enim reliquos, quibus ſolaris annus impletur, & diei quadrantem, propter quem quater ductum eo anno quem biſſextum vocant, unus dies adjicitur, addebantur à veteribus poſtea dies, ut occurreret numerus annorum; quos dies Romani intercalares vocabant.

ry

ry Month, in the Times immediately before the *Julian* Correction, was inſerted in the ſame Place where the Biſſextile Day is inſerted now; yet 'tis probable, from what St. *Auſtin* ſays, and indeed from the Agreeableneſs of the Thing it ſelf, that the *firſt* Correction of the ancient Year of 360 Days, was made by adding the 5 Days aforeſaid to the End of it.

(15.) That the original *Roman* Year was exactly 360 Days, is farther proved; becauſe a Tacit Year of that Length was retain'd in the *Roman* Empire, for the anniverſary Celebration of ſome particular Solemnities, long after the Eſtabliſhment of the *Julian* Year; as appears from ſome Inſcriptions in *Gruter*: Concerning which, hear the Words of the famous Cardinal *Noris*. 'In harum Inſcriptionum unâ dicitur Nonius 'Victor cum Aurelio Victore, *Datiano & Cereale Coſs*, tradidiſſe LEONTICA XVI. 'KAL. APRIL. Et in alterâ memorandum 'iidem, *Euſebio & Hypatio Coſs*, iterum tradidiſſe 'LEONTICA IV. IDUS MARTIAS. 'Erant ſacra anniverſaria, quæ anno evoluto, 'ab iiſdem inſtaurata fuerunt. Priora peracta 'ſunt anno Chriſti 358, die 17 Martii; altera 'anno 359, die ejuſdem menſis 12, jam evolutis 'diebus à prioribus Leonticis, 360.' This Reaſoning from ſuch undoubted Authorities, is ſo plain and convincing, that nothing farther need be added to it.

P. 1087. Inſcrip. 5. Noris de anno, &c. Syro-Maced. p. 4.

(16.) This Computation of 30 Days to every Month, and ſo of 360 Days to a Year, in ancient Time, is alſo confirm'd by that Length of a Month all along in the old Hiſtories, as has in great meaſure been prov'd already, and is confirm'd by theſe farther Teſtimonies. When Queen *Eſther* would expreſs her Abſence from King *Aha-*

Esth. iv. 11. *Ahasuerus* for an entire Month, she expresses it thus; *I have not been called to come in unto the King these* 30 *Days.* And when *Darius*'s Courtiers, in *Daniel*, sollicited him to prohibit Prayers for an entire Month likewise, they express'd it thus; that *none should ask a petition of any God or Man for* 30 *Days.* And this Month of 30 Days did certainly continue in civil Use at *Athens* till *Solon*'s Time at least. (g) *Diogenes Laertius* and (h) *Plutarch* agree, that he was the first who accommodated the Month to the Motion of the Moon, and called the last Day of it (which before was named τριακὰς, *the* 30*th Day*) ἕνη καὶ νέα, *the Old and New Day*, as belonging partly to the Old Moon, and partly to the New. And (i) *Proclus* also adds, that *Solon* was the first that made the Month less than 30 Days. Nay, even in later Times, above 200 Years after *Solon*, the ancient Astronomers, *Euctemon*, *Philip*, and *Calippus*, in those very Cycles which they made for adjusting the Years and Months to the Motions of the Sun and Moon, did con-

Dan. vi. 12.

(g) Diog. Laert. i. 57. in vita Solonis. Πρῶτος ὁ Σόλων τὴν τριακάδα ἕνην καὶ νέαν ἐκάλεσεν.

(h) Plutarch. in vita Solonis. Vitarum, pag. 92. Σωσιδῶν ὁ [Solon] τὴν μὲν ὑστέραν ἀνωμαλίαν, καὶ τὴν κύκλῳ τῆς σελήνης, ἅτε δυομένῳ τῷ ἡλίῳ πάντως, ὅτ' ἀνίσχοντι συμφερομένην, ἀλλὰ πολλάκις τῆς αὐτῆς ἡμέρας καὶ καταλαμβανέσας καὶ παρερχομένην ἥλιον, αὐτὴν μὲν ἔταξε ταύτην, ἕνην καὶ νέαν καλεῖσθαι· τὸ μὲν γὰρ σωμάτιον αὐτῆς τῷ παυομένῳ μηνὶ, τὸ δὲ λοιπὸν ἤδη τῷ ἀρχομένῳ προσήκειν ἡγούμενος. Πρῶτος, ὡς ἔοικεν, ὀρθῶς ἀκούσας Ὁμήρου λέγοντος

Τῇ μὲν φθίνοντος μηνὸς, τῇ δ' ἱσταμένοιο.

Τὴν δὲ ἐφεξῆς νουμηνίαν ἐκάλεσε. Τὴν δ' ἀπ' εἰκάδος ἕκτην προσθεὶς, ἀλλ' ἀφαιρῶν καὶ ἀναλίσκων, ὅσῳ τὰ φῶτα τῆς σελήνης ἧς ἑώρα μέχρι τοιαύτης ἠρίθμησεν.

(i) Proclus in Timæum, lib. 1. p. 25. lin. 43, &c. Σόλωνος δὲ καὶ ὅτι ὁ μὲν ὁ σελιναικὸς οὐκ ἔστι τριακονθήμερος, καὶ διὰ τοῦτο πρῶτος αὐτὸς ἕνην ἐκάλεσε καὶ νέαν, καὶ ὅλως τὸ ἀναστρέφαι πρὸς ἀριθμὸς τὰς ἡμερῶν ἀπὸ εἰκάδος, εἰς ἐκεῖνον ἀναφέρει.

stantly

ſtantly allow 30 Days to each Month, and then threw out every 63d or 64th Day, as is particularly explain'd in *Geminus*; who himſelf alſo expreſly (*k*) aſſerts, that the Ancients conſtantly allowed 30 Days to a Month. Laſtly, (*l*) *Julius Pollux*, (*m*) *Galen*, (*n*) *Cleomedes*, (*o*) *Orus Apollo*, (*q*) *Achilles Tatius*, and (*q*) St. *Auſtin*, do each of 'em aſſure us, that by a Month, in the vulgar way of ſpeaking, is meant 30 Days. Nay, the four laſt expreſs themſelves ſo, as if the Lunar Month it ſelf were exactly of that Length: And St. *Auſtin* carries the Matter farther, and

Cap. 6. ad calcem.

(*k*) Gemin. cap. 6. Οἱ μὲν ἐν ἀρχαῖοι τοὺς μῆνας τριακονθημέρους ἦγον.

(*l*) Jul. Pellux. lib. 1. Seg. 59. Περὶ τῶν μηνῶν. Ἐκ δὲ μηνῶν ἐρεῖς σιτηρέσιον ἔμμηνον, καὶ μισθαῖον, καὶ τριακονθήμερον.

(*m*) Galen. de Criſib. ij. 2. Τὸν μιᾶ τριάκοντα ἡμερῶν ἕξ λέγομεν.

(*n*) Cleomed. ii. 4. Καλεῖται δὲ [μὶα] καὶ τὸ ἀπὸ συνόδου ἐπὶ σύνοδον, χρονικὸν διάστημα· καὶ λοιπὸν, ὁ τριακονθήμερος χρόνος. Ὡς λέγομεν, μῆνα ἀποδιδημηκέναι, ἢ ὀπιδημεῖν, ἃ πάντως τὸ ἀπὸ συνόδου ἐπὶ-σύνοδον λέγοντες, ἀλλ' ἁπλῶς, ὃ τῶν τριάκοντα ἡμερῶν ἀριθμόν. Idem lib. 1. cap. 3. *Lunam* ait σωοδίειν τῷ ἡλίῳ διὰ λ' ἡμερῶν.

(*o*) Orus Apollo, lib. 1. Hierogl. 4. *Lunam* ait ἐν τῇ ὑποκειμένῃ τὸν ἀριθμὸν τῶν τριάκοντα ἡμερῶν πληρώσαι, εἰς τὸ κάτω τοῖς κύκλοις νεύειν.

(*p*) Achilles Tatius in Arati Phænomena, cap. 21. *De Luna.* Πεντεκαιδεκατᾶια γάρ ὅτι πληρωθεῖσα· ὃ ὅτιν ἥμισυ μηνὸς, διχαζομένων τῶν λ' ἡμερῶν.

(*q*) *Auguſtin. de Trin.* iv. 4. Annus etiam unus, ſi duodecim menſes integri conſiderentur, quos triceni dies complent, talem quippe menſem veteres obſervaverunt; quem circuitus Lunaris oſtendit. ſenario numero pollet. Quod enim valent ſex in primo ordine numerorum, qui conſtat ex unis ut perveniatur ad decem; hoc valent ſexaginta in ſecundo ordine, qui conſtat ex denis ut perveniatur ad centum. Sexagenarius verò numerus dierum ſexta pars anni eſt. Proinde per ſenarium primi verſus multiplicantur, tanquam ſenarius ſecundi verſus, & fiunt ſexies ſexageni, qui ſunt integri duodecim menſes.

Vide Not. (*f*), p. 158. prius,

takes the Lunar Year, or 12 Lunar Months, to contain juſt 360 Days. And even (*r*) *Dionyſius Exiguus*, above 500 Years after Chriſt, reproves many for this Error, of taking the Lunar Month to be juſt 30, and the Lunar Year juſt 360 Days. And it cannot be eaſily imagin'd, how ſo great an Error ſhould ſo univerſally obtain, unleſs the moſt ancient Year and Month had been juſt 360 and 30 Days in Length reſpectively.

And thus, I think, I have clearly prov'd the firſt Particular which I undertook, namely, That the ancienteſt Year in Uſe in moſt Nations of the *Poſtdiluvian* World, was exactly 360 Days, and the Month exactly 30 Days. I come now to ſhow, That even in the *Antediluvian* World, not only the Year in civil Uſe, but alſo the Solar Year, and the Lunar Year too, were each of them 360 Days in Length, and exactly commenſurate to one another. And here, if the Reader will make Allowances for the Diſtance and Obſcurity of the Times I am now about to treat of, and for the Scarcity of any Records belonging to them beſides the Holy Scripturcs; I believe he will find as much Evidenee, even for this *ſecond* Particular, as can reaſonably be expected, and what is abundantly ſufficient to ſatisfy him of the Truth and Reality of it.

And, (1.) ſince we have found, that the moſt ancient *Poſtdiluvian* Year in civil Uſe in moſt Countries, was exactly 360 Days, conſiſt-

(*r*) *Dionyſ. Exig. Epiſt. ad Petron.* Sed nec hoc prætereundum eſſe putavimus, quod nimis errant, qui lunam peragere curſum ſui circuli triginta dierum ſpatiis æſtimantes, duodecim lunares menſes in trecentis ſexaginta diebus annumerant.

ing of 12 equal Months of 30 Days apiece; 'Tis a ſtrong Preſumption, that the *Antediluvian* Civil Year was of the ſame Length. For it cannot eaſily be imagin'd, how this Year ſhould ſo univerſally obtain *after* the Deluge, except it had been in Uſe *before* it; eſpecially, ſince it is neither equal to the preſent *Solar* Year, nor to the *Lunar*. If the firſt Nations after the Deluge had made any Change in their Year, they would certainly have endeavour'd to make it conformable to the Motions, either of the Sun, or of the Moon, or both; which appears to be the Practice of every Nation, when they undertake to correct or alter the Year in civil Uſe. And therefore, ſince neither the Year of 360 Days, nor the Month of 30 Days, is agreeable to any of the Celeſtial Motions; it muſt be granted, that the *Poſtdiluvians* were not the firſt Framers of this Year, and therefore, that it was us'd *before* the Deluge alſo.

(2.) This farther appears by that moſt ancient and moſt valuable Teſtimony of *Moſes*; whereby we underſtand, that from the 17th Day of the 2d Month, when the Flood began, till the 17th Day of the 7th Month, when the Ark reſted, were juſt 150 Days, or juſt 30 Days for every intervening Month. The Words are theſe: *In the 600th Year of Noah's Life; the ſecond Month, the 17th Day of the Month, the ſame Day were all the Fountains of the great Deep broken up, and the windows of Heaven were open'd.*——*And the waters prevail'd upon the earth 150 Days.*——*And after the end of 150 Days, the waters were abated: And the Ark reſted in the 7th Month, on the 17th Day of the Month, upon the Mountains of Ararat.* So that hence 'tis evi- Gen. vii. 11. Ver. 24. Ch. viii. 3, 4.

dent, that 5 Months, *viz.* the ſecond, third, fourth, fifth and ſixth, had juſt 30 Days apiece; and, by Conſequence, 'tis moſt probable, that all the reſt had ſo likewiſe; and that therefore the whole Year had no more than 360 Days.

Lemma to the third Argument. *The ancient Succeſſion of Kings in* Beroſus *and* Abydenus, *whoſe Reigns are counted by* Sari, *govern'd ſome Part of the* Antediluvian *World, and ended at the Deluge.* All this is aſſerted by the Hiſtorians (ſ) themſelves. Nay farther, *Xiſuthrus* the laſt King, appears evidently to be the ſame with *Noah*, ſince almoſt the whole Hiſtory of the Flood, and of *Noah*'s being ſav'd in the Ark, may be found in the remaining Fragments of (ſ) *Beroſus* and *Abydenus*, if you only change the Name of *Xiſuthrus* for *Noah*. As particularly, that "God
Gen. vi. 17. & vii. 11. "reveal'd to *Xiſuthrus*, that a great Deluge "ſhould deſtroy Men from the Earth, and be-
Chap. vi. 18. 19, 20, 21, 22. & Chap. vii. 1,——16. "gin on the 15th Day of the Month *Dæſius*; "and therefore *Xiſuthrus* was commanded to ſave "himſelf and his Family, by entring into an "Ark or Ship, and to take with him into the "Ark all Sorts of Birds and Beaſts, with ne-"ceſſary Food for himſelf and them. Which "being done, the Deluge came, as predicted.
Chap. viii. 1, 3, 7, 8, 9. "And after the Rain had ceaſed, *Xiſuthrus* ſent "out a Bird, to ſee if the Waters were abated;
Ver. 10, 11. "which return'd to him again, having found "nothing to reſt upon. And after ſome Time, "he ſent out another; which return'd likewiſe, "but with dirty Feet, whereby he knew the Wa-

(ſ) *Vide* Beroſ. l. 2. citat. ab Alex. Polyhiſt. apud Syncel. p. 30, 31. Et Abyden. apud Euſeb. Præpar. ix. 12. vel apud Syncel. p. 38, 39. Similia de Deucalione tradit Lucianus de Deâ Syriâ.

"ters

" ters were abated. Laſtly, he ſent one out the Ver. 12.
" third time, which return'd not to him again.
" That afterwards, *Xiſuthrus* open'd the Ark, Ver. 13.
" and ſaw the Ground was dry; ſo he and his
" Wife came out, and rais'd an Altar, and ſacri- Ver. 18, 20.
" fic'd to the Gods. His Children alſo came
" out and ſacrific'd, and found that the Ark reſted Ver. 4.
" on the *Gordyean* Mountains in *Armenia*, and
" Part of it ſtill continued in being when this
" Account was written. Afterwards, *Xiſuthrus*'s Chap. xi.
" Children journey'd towards *Babylon*, built ma- 2, 3, 4. &
" ny Cities, and founded Temples, and particu- 10, 11, 12.
" larly built *Babylon*." Theſe Circumſtances are ſo agreeable to the Scripture-Hiſtory of the Deluge, that many have been tempted to think that *Beroſus* Tranſcrib'd this Account from thence. But that cannot eaſily be; becauſe amongſt theſe Truths, there are ſome Miſtakes and Falſities intermixt, which I thought it not worth the while to relate. But from thoſe Falſities, and from the Idolatry in this Hiſtory, it appears, that it was collected and put into Writing ſome few Years after the Deluge, namely, after the Riſe of Idolatry amongſt the *Poſtdiluvians*. And yet, 'tis very probable, this was done long before the Lives of Men were fix'd to the preſent Standard, while ſome that had convers'd with the Sons or Grandſons of *Noah* were ſtill alive; becauſe the Particulars of the Deluge are more accurately related therein, as we have ſeen, than could be ſuppoſed poſſible, had the Tradition paſs'd through very many Hands before it was committed to Writing.

(3.) That the *Antediluvian* Year was juſt 360 Days long, appears from the Reigns of theſe *Antediluvian* Kings, which, as I ſaid, are not reckon'd by *Years*, but by *Sari*. And our Au-

thors tell us, (*t*) a *Sarus* is 3600 Years; that is, (as ſome Ancient Chriſtian (*t*) Writers underſtood 'em, and as appears by the great Length of the particular Reigns, ſome of 'em amounting even to 18 *Sari* apiece) 3600 Days, or ten Years of 360 Days each. And the *Hebrew* or *Chaldee* Expreſſion of a *Sarus* confirms this Aſſertion. *Hhasár* is *Ten*; and the firſt Letter being ſuch a Guttural as could not well be pronounced by the *Greeks*, they would naturally expreſs the Word by Σάρος, which is therefore literally a *Decad*. For the Lives of the *Antediluvians* being generally at the leaſt *Ten times* as long as ours, they found it more convenient to reckon their own Lives and the Reigns of their Kings, rather by *Decads* of Years, than by ſingle *Years*. Now if a *Sarus*, or *Decad* of Years, contain'd 3600 Days before the Deluge; 'tis plain, that each Year contain'd juſt 360 Days.

Vide Syncel. p. 18.

(4.) If it be proved by the preceding Arguments, that the *Civil* Year before the Deluge was juſt 360 Days, and the Civil Month juſt 30 Days; 'twill be thence very probably concluded, that both the *Tropical* Year, and the *Lunar* Month, were each of the ſame Length reſpectively. The great Probability of this will appear, whether we ſuppoſe the Civil Year and Month to have been of *Human*, or of *Divine* Inſtitution. For, 1*ſt*, if they were of *Human* Inſtitution, what could induce the *Antediluvians* to make uſe of this Form of Year, if it varied

---

(*t*) Syncel. pag. 17. Ὁ μὲν Βήρωσος διὰ Σάρων καὶ Νήρων καὶ Σώσσων ἀνεγράψατο· ὧν ὁ μὲν Σάρος τριακιλίων καὶ ἑξακοσίων ἐτῶν χρόνον σημαίνει. ὁ δὲ Νῆρος ἔτη ἑξακοσίων· ὁ δὲ Σῶσσος ἑξήκοντα. Καὶ σωθῆναι Σάρους ἑκατὸν εἴκοσι διὰ βασιλέων δέκα.——Ταῦτα δὲ ἔτι τινὲς τῶν καθ' ἡμᾶς ἱστορικῶν, ἡμέρας ἐλογίσαντο σχασικῶς. Vide & Syncel. p. 32. B.

as

as much from the Motions both of the Sun and Moon, as it does at preſent? The *Antediluvian* Earth was extreamly fruitful, the Lives of its Inhabitants extreamly long, and the Air at that Time extreamly clear; So that the Inhabitants of the Old World wanted neither Leiſure, nor Time, nor Opportunity, to make Multitudes of Obſervations, in order to diſcover the true Length of the Year and Month: Which if they had diſcover'd, the great Conveniencies viſibly conſequent upon the Uſe of 'em, muſt needs have induced the Civil Powers to have enjoin'd and eſtabliſh'd 'em accordingly. Now, ſince it appears by the former Arguments, that, in fact, the *Civil Year* before the Deluge was juſt 360 Days, and the Civil *Month* juſt 30 Days; 'twill be highly probable, from what is here alledg'd, that (if the ſame Civil Year and Month were of *Human* Diſcovery and Inſtitution) the *Tropical* Year and *Lunar* Month were of the ſame Length alſo. But, *2dly*, if, on the other hand, God himſelf reveal'd to Mankind the true Length of the Year; 'twill be ſtill more evident, that the *Antediluvian* Tropical Year was exactly 360 Days long, and the Lunar Month exactly 30 Days: For God cannot deceive his Creatures; nor would he inſtitute a Form of Year which was *leſs* convenient and proper for attaining the End for which it was inſtituted, when nothing hinder'd but that the *moſt* convenient and *moſt* proper, that is, the true Tropical Year and Lunar Month, might have been as eaſily aſcertain'd by Divine Revelation, as any others. Since therefore 'tis before prov'd, that the Civil Year was juſt 360 Days before the Deluge, and the Civil Month juſt 30 Days; if God taught Mankind this Length of

the Year and Month; then it plainly appears, that the Tropical Year and Lunar Month were juſt 360 and 30 Days long reſpectively. And upon the whole, whether the *Antediluvian* Civil Year and Month were of *Divine* or of *Human* Original (and of one of the two they certainly were;) It appears either way highly probable, that both the Tropical and Lunar Year were juſt 360 Days each, and the Lunar Month exactly 30 Days.

(5.) And that the Primitive *Solar Year* was really no more than 360 *Days*, and contain'd juſt 12 *Lunar Months* of 30 Days apiece, appears farther, by the *moſt ancient Diviſion* of the *Solar Courſe* into juſt 360 *Degrees*, and thoſe diſtributed into 12 *Signs* of 30 Degrees apiece. For the only Natural Reaſon that can be given, why the Zodiack or Solar Circle was at firſt divided either into juſt 360 Degrees, or 12 Signs, and why juſt 30 Degrees were allotted to each Sign, muſt be, That when this Diviſion was made, the Sun ran through the Zodiack in juſt 360 Days, which were alſo 12 Lunar Months, 30 Days being then the exact Length of every Month. And this Diviſion of the Zodiack or Solar Circle into 360 Degrees, was ſo very famous and remarkable in old Time, that Aſtronomers and all other Mathematicians have transferr'd that Number of Degrees to every other Circle which they conſider'd; and have ſtill ſuppos'd 'em divided, every one, great and ſmall, into 360 Degrees. And this Diviſion of a Circle has continued ever ſince to this Day, as a ſtanding Memorial of that moſt Ancient Tropical Year which obtain'd when this Diviſion was made. I called this Diviſion of the Zodiack a *moſt ancient* one, becauſe it appears to have been made long before the earlieſt Accounts of Aſtronomy that we have; they

they all ſtill ſuppoſing it, and not at all mentioning any thing of its firſt Introduction. And ſince this Diviſion was firſt made when the true Solar Year was no more than 360 Days in Length, and contain'd juſt 12 Lunar Months of 30 Days apiece; 'twas therefore older than the Deluge; ſince we are pretty certain that, generally ſpeaking, ſince the Deluge, the Solar Year has been ſome Hours longer than 365 Days, and the Lunar Year ſome Hours ſhorter than 355. If then the Zodiack was thus divided *before* the Deluge, in Correſpondence with the true Solar and Lunar Year; 'tis evident, that before the Deluge they were each of 'em juſt 360 Days, and ſubdivided into 12 Lunar Months of 30 Days apiece.

Lemma 1. to the ſixth and ſeventh Arguments. Manetho's *moſt ancient Succeſſion of the* Gods, *as he calls 'em, reign'd before the Deluge, and ended at it.* *Manetho* divides his Dynaſties into thoſe of the *Gods*, *Demi-Gods*, *Heroes* and *Men*. In this Place I only ſpeak of the firſt of theſe, becauſe none of the reſt do contribute any thing to the preſent Argument. Now by *Gods* here, *Manetho* (as he (*u*) elſewhere explains himſelf) means only Mortal Men, who, for their Wiſdom and Goodneſs, were ſeverally promoted to the Regal Dignity, and afterwards made immortal. And (*w*) *Diodorus Siculus* alſo ſpeaks to

---

(*u*) Manetho ap. Euſeb. Præp. ii. 1. pag. 45. Τὰς δὲ Θεὰς ἀνθρώπους μὲν ὑπαρξαι φησὶ, διὰ δὲ σωτῆρα καὶ κοινὸν ἀνθρώπων εὐεργέτην τυχεῖν τῆς ἀθανασίας, ὧν ἑνὸς καὶ βασιλεῖς γενέσθαι.

(*w*) Diod. Sicul. lib. 1. p. 8. Περὶ μὲν οὖν τῶν ἐν ἀρχαιῳ Θεῶν, καὶ φύσιν αἰτίαν ἐσχηκότων, τοσαῦτα λέγουσιν Αἰγύπτιοι. Ἄλλους δὲ ἐκ τούτων ὑπογεγονέναι φασὶν, ὑπάρξαντας μὲν θνητοὺς, διὰ δὲ σωτηρίαν καὶ κοινὴν ἀνθρώπων εὐεργεσίαν, τετυχότας τῆς ἀθανασίας· ὧν ἑνὸς καὶ βασιλεῖς γεγονέναι τὸν Ἄιγυπτον. Μεθερμηνευόμενον δὲ αὐτῶν, πολὺς μὲν ὁμωνύμως ὑπάρχειν τοῖς ἀρχαίοις, πολὺς δὲ ἰδίαν ἐσχηκέναι προσηγορίαν, Ἥλιον καὶ Κρόνον, &c.

the

the ſame Purpoſe. But I ſhall not take upon me to defend every Thing that *Manetho*, or any other Writer has advanc'd concerning theſe very ancient Times. 'Tis ſufficient for my Purpoſe, if I prove that theſe Kings, whom *Manetho* calls *Gods*, reign'd over ſome Part of the *Antediluvian* World, and ended at the Deluge; their Memory being preſerv'd by the old *Egyptian* Records, and their Hiſtory committed to Writing (*x*) not many Years after the Diſperſion from *Babel*. I ſhall therefore endeavour to prove this *Lemma*, *Firſt*, by the Authority of ſeveral ancient Chriſtian Chronographers at leaſt, if not by the direct Aſſertion of *Manetho* himſelf: *Secondly*, from a Conſideration of the *firſt* King; and, *Thirdly*, from a Conſideration of the *laſt* King in the ſame Succeſſion.

And, *Firſt*, I am to ſhew, what Authority may be produc'd to prove that theſe Kings reign'd before the Deluge. I obſerve then, that both *Africanus* in the Third, and *Euſebius* in the Fourth Century of Chriſtianity, having ſpoken of the former Sorts of *Manetho*'s Dynaſties, and of the *Gods* among the reſt, do each of them prefix this Title to the following Dynaſties of *Men*; [*Of the* Egyptian *Dynaſties after the Deluge*:] which clearly intimates, that the preceding ones (and therefore alſo the *Gods*) were *before the Deluge*. And *Panodorus*, in the Beginning of the Fifth

Vide Syncel. p. 54. B. & 55. A.

Vide Syncel. p. 40, 41.

(*x*) *For* Thoth, *the moſt ancient* Egyptian Mercury, *the ſame with* Athothes, *the ſecond King of* Egypt, *who began to reign* [*by the* Hebrew *Chronology*] *within leſs than* 200 *Years after the Deluge, invented Letters: And from his Memoirs*, Manetho *compiled his Hiſtory, or at leaſt, that Part of it which relates to the Gods*, &c. *See Sir* John Marſham's Canon Chronicus. Secul. 1. Tit. *Thoth Mercurius. Dii Cabiri. And particularly obſerve what* Syncellus *ſays*, p. 40. A. B.

Cen-

Century, ſuppoſes both the *Gods* and *Demigods* to have reign'd before the Deluge. And *Georgius Syncellus*, tho' he rejects *Manetho*'s Authority in this Particular; yet he every where allows and takes it for granted, that they were to be taken for *Antediluvian* Kings, and ſuppoſed to be ſo even by *Manetho* himſelf. And indeed, the Length of ſome of their Reigns is entirely diſproportionate to any Poſtdiluvian Times; and when Allowance is made for *Manetho*'s Way of reckoning, (which I ſhall preſently explain) will be found very agreeable to the Longevity of the *Antediluvian* Patriarchs.

Syncel. p. 34. D. & 37. C. D.

Secondly, The Succeſſion of the Gods appears to have been before the Deluge; becauſe *Vulcan*, the firſt King, was ſo. (y) *Tzetzes* ſays, he was contemporary with *Noah*, whom he ſuppoſes to be the ſame with *Oſiris*; but by the ſame Argument he ought to have concluded, that the *Egyptian Vulcan* was long before *Noah*, ſince he was long before *Oſiris*, as all will allow, and as it particularly appears from this very Succeſſion of the *Gods*. And indeed, *Vulcan* ſeems to be no other than *Tubal-Cain* in Scripture. Their Names are near a-kin to each other: And the ſame Character belongs to both. The Scripture ſays, that *Tubal-Cain* was the *Inſtructor of every Artificer in Braſs and Iron*: And *Vulcan* is famous in prophane Authors, not only for his artificial working (z) in all Sorts of Metals, but

Gen. iv. 22.

(y) Tzetz. Chil. x. verſ. 492, &c.

Ἥφαιστός τις Αἰγύπτιος, ἐν χρόνοις τοῖς τοῦ Νῶε,
Ὃς Νῶε καὶ Διόνυσος καὶ Ὄσιρις καλεῖτο,
Εὗρε πῦρ, καὶ τέχνας ὅσαι τε ἐκ πυρὸς, ὁτόσαι.

(z) Vid. Homer. Il. Σ. verſ. 370, &c. Et Virgil. Æn. viii. ver. 400, &c. Apud Homerum Vulcanus appellatur χαλκευς, κλυτοτέχνης, κλυτοεργὸς, &c. Apud Orpheum (Hymn. in Vulcan.) φωσφόρος, καρτερόχειρ, τεχνοδαίτης, ἐργασήρ, &c.

alſo

also for his instructing (*a*) Mankind therein. And 'tis remarkable, that this is the more peculiar Character of this *Vulcan* here, in the (*b*) *Egyptian* Succession of the *Gods*, than of any other.

(*a*) Homer. Hymn. in Vulcanum, vers. 1, 2, 3.
Ἡφαίστην κλυτόμητιν ἀείδετο, Μοῦσα λίγεια,
Ὃς μετ' Ἀθηναίης γλαυκώπιδος, ἀγλαὰ ἔργα
Ἀνθρώπους ἐδίδαξεν ὅπι χθονός,
Et Platonis Convivium. Operum pag. 325, D. Καὶ Μοῦσαι μουσικῆς [inventrices & διδάσκαλοι] καὶ Ἡφαίστου χαλκείας, καὶ Ἀθηνᾶ ἱστουργίας, καὶ Διὸς κυβερνήσεως θεῶν τε καὶ ἀνθρώπων.
Et ejusdem Politic. Operum p. 177. A. [De temporibus aureum seculum proximè succedentibus verba faciens] Ὅθεν δὴ τὰ πάλαι λεχθέντα ἆρά θεῶν δῶρα ἡμῖν δεδώρηται μετ' ἀναγκαίας διδαχῆς καὶ παιδεύσεως· πῦρ μὲν γὰρ Προμηθέως, τέχναι δὲ παρ' Ἡφαίστου καὶ τῆς Διογενοῦς· σπέρματα δὲ καὶ φυτὰ παρ' ἄλλων· καὶ πάνθ' ὅσα τὸν ἀνθρώπινον βίον κατεσκεύακεν, ἐκ τούτων γέγονεν.
Et Diodorus Siculus, lib. 5. pag. 235. Ἡφαιστον δὲ λέγουσιν εὑρετὴν τοῦ πυρὸς τοῦ σίδηρον ἐργασίας ἁπάσης, καὶ τοῦ χαλκὸν καὶ χρυσὸν καὶ ἄργυρον, καὶ τῶν ἄλλων ὅσα τῶν ἐκ τοῦ πυρὸς ἐργασίαν ὑπομένει. Καὶ τὰς ἄλλας δὲ χρείας τοῦ πυρὸς ἁπάσας προσεξευρεῖν, καὶ προβεβλῆσθαι τοῖς τε τὰς τέχνας ἐργαζομένοις, καὶ τοῖς ἄλλοις ἅπασιν ἀνθρώποις. Διόπερ οἵ τε τῶν τεχνῶν τούτων δημιουργοὶ τὰς εὐχὰς καὶ θυσίας τούτῳ τῷ θεῷ μάλιστα ποιοῦσι, καὶ τὸ πῦρ ἕτοιμόν τε καὶ πάντες οἱ ἄνθρωποι προσαγορεύουσιν Ἡφαιστον, εἰς μνήμην καὶ τιμὴν ἀθάνατον πεφεμένοι τὴν ἐξ ἀρχῆς τῷ κοινῷ βίῳ δεδομένην ἐνεργεσίαν.

(*b*) Diodor. Sic. lib. 1. pag. 8, 9. Ἔνιοι δὲ τῶν ἱερέων φασὶ πρῶτον Ἡφαιστον βασιλεῦσαι, πυρὸς εὑρετὴν νομισθέντα, καὶ διὰ τὴν εὐχρησίαν ταύτην, τυχόντα τῆς ἡγεμονίας. Γενομένου γὰρ ἐν τοῖς ὄρεσι δεινῆς καυσοβόλου λόγχης, καὶ τοῦ πλησίον ὕλης καιομένης, προσελθόντα τὸν Ἡφαιστον καὶ τὸ χειμέριον ὦρος, ἡδέως διαφερόντως ὑπὸ τῆς θερμασίας· λήγοντος δὲ τοῦ πυρὸς, ἀεὶ τὴν ὕλην ὑποβάλλειν. Καὶ τούτῳ τῷ τρόπῳ διατηρῆσαι τὸ πῦρ, προσκαλεῖσθαι τοὺς ἄλλους ἀνθρώπους πρὸς τὴν ἐξ αὐτοῦ γινομένην εὐχρησίαν. *Similia de æris & ferri inventione tradit Seneca, Epist.* 90. In hoc quoque dissentio, sapientes fuisse, qui ferri metalla & æris invenerunt: cum incendio sylvarum adusta tellus, in summo venas jacentes liquefacta fudisset.
Et Chron. Alexandrin. pag. 106. Περὶ σιδήρου πῶς πρῶτος ἐφεῦρεν. Ὁ δὲ αὐτὸς Φαραὼ [Ægyptiorum Rex] ἀπὸ μυσικῆς πνοῆς εὐχῆς τῷ ὀξυλάβῳ ἐδέξατο ἐκ τοῦ ἀέρος, εἰς τὸ κατασκευάζειν ἐκ σιδήρου ὅπλα. Ὅθεν καὶ ὁ Βαχρατὴς σιδήρου ἐπυρέθη εἰς

Third-

Thirdly, The ſame Thing may be prov'd from ſome Conſiderations upon *Typhon*, the laſt King of this Succeſſion; namely, that he reign'd immediately before the Deluge, and periſh'd therein. This will clearly follow from what is before prov'd, if compar'd with the following *Lemma*. For if *Vulcan* be *Tubal-Cain*, this Succeſſion muſt neceſſarily end at the Deluge; the Number of Years it contains not permitting us to ſuppoſe it could poſſibly end any conſiderable Time before it. But this will farther appear, 1ſt, Becauſe many Circumſtances of the Deluge are mention'd in the Hiſtory of *Oſiris* and *Typhon*, in *Plutarch* and others; as particularly the very Day when the Deluge began, or when *Oſiris*, (who is taken for *Noah*) was ſhut up in the Ark, *viz.* the 17th Day of the 2d Month after the Autumnal Equinox, as has been obſerv'd before. And other Circumſtances of the Deluge there are in *Typhon*'s Hiſtory, ſome of which I ſhall have Occaſion to mention preſently, and others will be produc'd under the following *Hypotheſis*. 2dly, The very Name of *Typhon* alſo, according to ſome Learned (*c*) Men, ſignifies a *Deluge* or *Inundation*; whence the *Egyptian* Prieſts (as (*d*) *Plutarch* ſays) called the Sea *Typhon*.

Not. (*y*) pag. 170. prius. Arg. 7. Hypoth. vi. prius. Arg. 7. infra. P. 185, &c. infra.

τοὺ πολέμες. Ἀποθέωσαν ἕν αὐτὸν ὡς——τροφὴν ἀνθρώποις διὰ κατασκευῆς ὅπλων ἐυρηκότα, καὶ ἐν τοῖς πολέμοις δωίαμιν καὶ σωτηρίαν ποιήσαντα. Πρὸ γὰρ αὐτοῦ, ῥοπάλοις καὶ λίθοις ἐπολέμων. Similia de Vulcano Ægyptiorum Rege, de ὀξυλαβῇ ſeu forcipe, & de ferri inventione & uſu, reperiuntur apud Cedrenum, p. 19. D. & apud Suid. voce Ἥφαις. Vide etiam Not. (*y*) p. 171. prius.

(*c*) *See* Jurieu's *Doctrines and Worſhip of the Church*. Part iii. Treatiſe iv. [*Of the Golden Calf.*] chap. viii. Vol. ii. p. 208.

(*d*) Plutarch de Iſide & Oſiride, Operum Moral. p. 363. Ὥσπερ Ἕλληνες Κρόνον ἀλληγορῦσι τὸν χρόνον, Ἦσαν δὲ καὶ ὑγρὰν οὐσίαν Ὠκεανὸν, καὶ εἰς πῦρ, ἀέρα μεταβολὰς· οὕτω παρ, Αἰγυπτίοις Νεῖλον εἶναι τὸν Ὄσιριν, Ἴσιν δὲ σωμάτων τὴν γῆν· Τυφῶνα δὲ τὴν θάλασσαν, εἰς ἣν ὁ Νεῖλος ἐμπίπτων ἀφανίζεται καὶ διασπᾶται. (a

3dly, *Typhon* (whom the *Latin* Poets more frequently call *Typhoeus*) is (*e*) repreſented as a monſtrous Giant who *fought againſt Heaven*, and was at laſt overcome by *Jupiter*, and, as one ſays, (*f*) *lies now ſubmers'd in Water*. From all which, it appears very probable, that he was one of thoſe *Giants* who, as the Scripture ſays, *were in the Earth before the Flood*; one of thoſe *mighty Men which were of old, Men of Renown*, whoſe Wickedneſs was ſo exceeding great, as might eaſily give Occaſion to the ancient Tradition of their *fighting againſt God*. And laſtly, *Typhon*'s being ſaid to be overcome and ſubmers'd in Water, ſeems evidently to proceed from his periſhing in the Deluge, which was brought upon the Earth by the great Wickedneſs wherein (*g*) He, and indeed all the *Antediluvian* World had involv'd themſelves. So that upon the whole, it cannot eaſily be denied that this Succeſſion of the *Gods* ended at the Deluge, and that *Typhon*, the laſt King of it, periſh'd therein. [See another Notion of *Typhon*, in the IIId Appendix to the *Eſſay for Reſtoring the True Text of the Old Teſtament*.]

Gen. vi. 4.

Ver. 5, 6, 7, 11, 12, 13.

Lemma 2. to the 6th and 7th Arguments. *The Reigns of the Gods in* Manetho, *are not expreſs'd by Years, but partly by Lunar Months, and partly by* ὥρας,

---

(*e*) Vid. Æſchyl. in Prometh. vincto, ver. 351,—365. Et Apollodori Bibliothec. lib. 1. cap. 6. Sect. 3. Et Antonini Liberalis, c. 28. Et Diodor. Sicul. l. 1. p. 16. A. B. Et alios paſſim.

(*f*) Apollonii Argonaut. lib. 2. ver. 1215, &c.

Ἔνθα Τυφάονα φασὶ Διὸς Κεραυνίδαο κεναυχῆ
Βλήμενον, ὁππότε οἱ σθεναρὰς ἐπορέξατο χεῖρας,
Θέρμὸν ἀπὸ κρατὸς σάξαι φόνον, ἴκετο δ' αὖτως
Οὔρεα καὶ πεδίον Νυσηΐον, ἔνθ' ἔπι νηῶν πρὸ
Κεῖνο ὑποβρύχιος Σειρηνίδος ἴδασι λίμνης.

(*g*) Diodor. Sic. lib. 1. pag. 12. Φασὶ——νομίμως βασιλεύσαντα τῆς Αἰγύπτου τὸν Ὄσιριν, ὑπὸ Τυφῶνος ἀναιρεθῆναι τὸν ἀδελφὸν, βιαίου καὶ ἀσεβοῦς ὄντος. Vide etiam Euſeb. Præp. ii. 1. p. 46. D. Et confer Gen. vi. 11, 13.

or

or Seaſons. The Probability of this *Lemma* (*h*) *Diodorus* aſſures us of; that when 'tis ſaid that ſome of the firſt Kings of the Succeſſion of the Gods reign'd about 1200 Years, ſo many *Lunar Months* are underſtood thereby: And when 'tis ſaid that the latter Kings of the ſame Succeſſion reign'd 300 Years or more, there the *Seaſons of the Year* are underſtood, reckoning 4 Months in every Seaſon, and 3 Seaſons in every Year, namely, Spring, Summer and Winter. And theſe two Sorts of *Egyptian* Computations for Years are alſo obſerv'd by (*i*) *Plutarch.* And particularly as to the former, (*k*) *Varro*, (*l*) *Pliny*, (*m*) *Macrobius*, and (*n*) *Sui-*

(*h*) Diodor. Sic. lib. 1. p. 15, 16. Μυθολογῦσι ὴ [Αἰγύπτιοι] κὴ τ̃ Θεῶν τοὺ μ̃ ἀρχαιοτάτους βασιλῦσαι πλείω τ̃ χιλίων κὴ διακοσίων ἐτῶν, τοὺ ὴ μεταγενεστέρους ὐκ ἐλάττω τ̃ τριακοσίων· ἀπ̃ὸ δ' ὄντ⊖ τ̃ὸ πλήθους τ̃ ἐτῶν, ὅπ χειρῦσι τινὲς λέγειν, ὅτι τὸ παλαιὸν, ὅτε τ̃ φερὶ τ̃ ἥλιον κινήσεως ἐπιγνωσμένης, συνέβαινε κ̃ τ̃ τ̃ σελήνης φερίοδον ἄγεσθ τ̃ ἐνιαυτόν. Διόπερ τ̃ ἐτῶν τριακονθημέρων ὄντων, ὐκ ἀξιωτον ἔτι βεβιωκέναι τινὰς ἔτη χίλια κὴ διακόσια· κὴ γὰ νυ, δυωκαίδεκα μηνῶν ὄντων τ̃ ἐνιαυτῶν, ὐκ ὀλίγους φερ̃ ἑκατὸν ἔτη ζ̃ῆν. Παραπλήσια ὴ λέγουσι κὴ φερὶ τ̃ τριακόσια ἔτη δοκούντων ἄρξαι. Κατ' ἐκείνους γὰ τοὺ χρόνους, τ̃ ἐνιαυτὸν ἀπαρτίζεσθ τέτταρσι μησὶ, τοῖς ὡρομηνίοις κατὰ τὰς τ̃ χρόνων ὥρας, οἷ ἔαρ⊖, θέρος, χειμών⊖. Ἀφ' ἧς αἰτίας κὴ παρ' ἐνίοις τ̃ Ἑλλήνων, τοὺ ἐνιαυτοὺς ὥρας καλεῖσθ, κὴ τὰς κατ' ἔτ⊖ ἀναγραφὰς ὡρογραφίας φροσαγορεύεσθ.

(*i*) Plutarch. in Numa. Vitarum, p. 72. Αἰγυπτίοις ὴ μηνιαῖ⊖ ἦν ὁ ἐνιαυτὸς, εἶτα τετραμην⊖, ὥς φασι. Διὸ κὴ νεωτάτην χώραν οἰκοῦντες, ἀρχαιότατοι δοκοῦσιν εἶν, κὴ πλῆθ⊖ ἀμήχανον ἐτῶν ὅτι τ̃ ἡλιακῶν περιφορῶν, ἃ τε δὴ τοὺ μῆνας εἰς ἐτῶν ἀριθμοὺ πλέκωσι.

(*k*) *Lactan. Inſtitut.* ii. 12. [*Speaking of Mankind immediately after the Fall.*] Sic facta hominis vita eſt temporaria, ſed tamen longa, quæ in mille annos propagaretur. Quod, divinis Literis proditum, & per omnium ſcientiam publicatum cum Varro non ignoraret, argumentari nixus eſt, cur putarentur antiqui mille annos victitaſſe. Ait enim, apud Ægyptios pro annis menſes haberi, ut non Solis per 12 ſigna circuitus faciat annum, ſed Luna, quæ orbem illum ſigniferum 30 dierum ſpatio illuſtrat, &c.

das,

das, do all agree, that the *Egyptians* of old computed a Lunar Month for a Year. And (*o*) *Julius Africanus* ſpeaks alſo of ſeveral that computed the Reigns of the moſt ancient Kings of *Egypt* upon this *Hypotheſis*. And (*p*) *Euſebius* alſo aſſerts, that this Method of reckoning a Month for a Year, was practis'd by the moſt ancient *Egyptians*. Add, that (*q*) *Eudoxus* alſo aſſerts, that the *Egyptians* formerly us'd a Month for a Year. And ſome ancient Chriſtian Chronographers were ſo fully perſuaded of this, that they have extended it too far, and ſuppos'd, that all the Reigns of the *Gods* in *Manetho* were reckon'd by Months only; and on that Suppoſition, have reduc'd them to Tropical

Vide Syncel. p. 19.

(*l*) *Plin. Nat. Hiſt.* vii. 48. Annum enim alii æſtate unum determinabant, & alterum hieme: alii quadripartitis temporibus, ſicut Arcades, quorum anni trimeſtres fuere: quidam Lunæ ſenio, ut Ægyptii: itaque apud eos aliqui & ſingula millia annorum vixiſſe produntur. *This Paſſage is quoted by St.* Auſtin, de Civit. Dei, xv. 12. *where for* [Lunæ ſenio] *he reads* [Lunæ fine.]

(*m*) *Macrob. Saturnal.* i. 14. [Apud Ægyptios] Lunaris annus menſis eſt, quia Luna paulo minus quam menſem in Zodiaci circutione conſumit.

(*n*) Suid. in Ἡλιος, de regno Solis, Vulcani Fil. verba faciens, Οἱ μὲν γὰρ τὰς ἡμέρας ἐνιαυτὸς ἐψήφιζον· οἱ δὲ τὰς περιόδους τῆς σελήνης· ἕτεροι δὲ τοῦ δ' καιρός.

(*o*) African. apud Syncel. p. 17. Αἰγύπτιοι μὲν οὖν ——— περὶ τὰς περιόδους καὶ μυριάδας ἐτῶν, καταθεσίν τινα ἔσχηκαν παρ' αὐτοῖς ἀστρολογουμένων ἐξέθεντο· ἅς τινες τῶν ταῦτα ἀκριβῶν δοκούντων συνέλοντες, σεληνιαίους εἶπον ἐνιαυτούς, &c.

(*p*) Euſeb. apud Syncel. p. 40. Αἰγύπτιοι δὲ Θεῶν καὶ Ἡμιθέων, καὶ ἔτι τούτοις νεκύων καὶ ἀνυπάρκτων ἑτέρων βασιλέων, πολλὴν καὶ φλύαρον συνείρουσι μυθολογίαν. Οἱ γὰρ παρ' αὐτοῖς παλαιότατοι σεληνιαίους ἔφασκον εἶναι, ἤγουν μηνιαίους τοὺς ἐνιαυτούς, ἐξ ἡμερῶν τριάκοντα συνεστῶτας.

(*q*) Proclus in Timæum, lib. 1. pag. 31. lin. 50, &c. Εἰ δὲ καὶ ὃ φησιν Εὔδοξος ἀληθές, ὅτι Αἰγύπτιοι τὸν μῆνα ἐνιαυτὸν ἐκάλουν, ἐκ ἂν ἡ τῶν πολλῶν τούτων ἐνιαυτῶν ἀπαρίθμησις ἔχοι τὸ θαυμαστόν.

or *Julian* Years : Whereas it appears from *Diodorus*, that only the long Reigns of the *firſt* Kings are to be computed by Lunar Months, and thoſe of the reſt by Seaſons of four Months apiece, or the third Part of a Year. And this Computation of 4 Months for a Year, is not only atteſted by *Diodorus* and *Plutarch* as before, but alſo by (*r*) *Cenſorinus*, (*ſ*) *Solinus*, and (*t*) St. *Auſtin*, who each of 'em affirm, that the *Egyptians* of old uſed this way of reckoning. [But ſee the *Eſſay on the Old Teſtament.*]

(6.) That before the Deluge, the *Lunar* Year at leaſt, of 12 Lunar Months, and very probably the *Solar* Year too, was juſt 360 Days, and each Month juſt 30 Days, will appear from ſome Reigns in this *Antediluvian* Dynaſty of the *Gods*. This I ſhall prove by ſhowing firſt, that the Lunar Year was then exactly 12 Lunar Months, or 12 Synodical Revolutions of the Moon, without any Embolimary Month : *Secondly*, That the Tropical Solar Year contain'd 12 Months alſo ; and *Thirdly*, That each Lunar Month contain'd exactly 30 Days. And *Firſt*, The Lunar Year was exactly 12 Lunar Months long. For *Vulcan* in (*u*) *Manetho* is

---

(*r*) *Cenſorin.* c. 19. Et in Ægypto quidem antiquiſſimum ferunt annum bimeſtrem fuiſſe ; poſt deinde ab Iſone Rege quadrimeſtrem factum : noviſſime Arminon ad tredecim [*lege* duodecim] menſes & dies quinque perduxiſſe.

(*ſ*) *Solin. Polyhiſt.* c. 3. [Annus] apud Ægyptios quatuor menſibus terminabatur. *Quoted alſo* (*but without naming the Author*) *by St.* Auſtin, de Civ. Dei xv. 12.

(*t*) *Auguſtin. de Civ. Dei*, xii. 10. Perhibentur enim Ægyptii quondam tam breves annos habuiſſe, ut quaternis menſibus finirentur. Unde annus plenior & verior, qualis nunc & nobis & illis eſt, tres eorum annos complectebatur antiquos.

(*u*) Syncel. p. P8. Πρῶτος, φησὶν [Manetho] Θεὸς Ἥφαιστος ἔτη ἐννακισχίλια ἐβασίλευσεν. Ταῦτα τὰ ἐννακισχίλια ἔτη πάλιν πνὲς τῷ καθ' ἡμᾶς ἱστορικῶν, ἀντὶ μηνῶν λογισάμενοι καὶ ἐπ-

ſaid to have reign'd 9000 Years; that is, as I have prov'd, 9000 Revolutions of the Moon, which make up 750 Years of 12 Months each, or if you pleaſe, 75 *Sari*. From whence it appears, that each Year had in it 12 Lunar Months exactly; no Embolimary Month being taken in for 750 Years together. 2*dly*, The Tropical Year contain'd 12 Months alſo; as appears from the Years of the latter Kings of this ſame Succeſſion of the *Gods*, which are ſaid to be each of the three Seaſons of the Year, *viz.* Spring, Summer and Winter, each containing four Months. From whence it follows, that the *Tropical* Year (for 'tis a Year determin'd by the *Seaſons*) was exactly 12 Months alſo: Which Months muſt in all Reaſon be ſuppos'd to be of the ſame Sort with thoſe which were before ſpoken of, namely, *Lunar* Months. So that 'tis highly probable, the Tropical Year at that Time was juſt 12 Lunar Months in Length. 3*dly*, Each Month at the ſame Time contain'd exactly 30 Days. This is atteſted by many ancient Authors. Thus *Varro*, ſpeaking of theſe large Numbers in the Records of ancient Time, ſays, the *Egyptians* therein do reckon Lunar Months for Years, and allow thirty Days to the Time in which the Moon finiſhes its menſtrual Courſe. And *Diodorus Siculus*, ſpeaking of thoſe who reckon'd the Reigns of the *Gods* in *Egypt* by Lunar Months, expreſly aſſerts, that they computed 30 Days to a Month. And in like manner, when *Euſebius* (ſpeaking alſo of the long Reigns in the *Egyptian* Succeſ-

Lem. 2. *to this and the next Argument.*

Ibid.

Vide Not. (*k*) p. 175. prius.

Vide Not. (*h*) p. 175. prius.

Vide Not. (*p*) p. 176. prius.

εἰσαντες τὸ τῶ ἡμερῶν πλῆθος τῶ αὐτῶν ἐναυσιαυσίων σεληνιακῶν ἐτῶν τὰς τριακοσίας ἑξήκοντα πέντε ἡμέρας τοῦ ἐνιαυτοῦ, συνῆξαν ἔτη ἑπτακόσια εἴκοσι ἑπτὰ καὶ ἥμισυ καὶ τέσσαρας ἡμέρας. [Hic quædam correxere Joſeph. Scaliger & Jac. Goar.]

ſion

ſion of the *Gods*) ſays, that the moſt ancient *Egyptians* reckon'd by Lunar Months inſtead of Years; he adds in the ſame Place, that thoſe Lunar Months conſiſted of thirty Days apiece. And (*x*) *Panodorus* ſeems to intimate, that before the Deluge, not only the *Civil*, but alſo the *Lunar* Month was exactly 30 Days; and that the Reigns of the *Gods* in *Manetho* were computed by Lunar Months of thirty Days apiece. To theſe Teſtimonies I need not add St. *Auſtin* here, as having already produc'd what he has ſpoken on this Subject. Since then it appears by the *firſt* Part of this Argument, that, during the *Antediluvian* Succeſſion, there were exactly 12 Lunar Revolutions in the Year; and ſince it appears by the *ſecond* Part, that there were exactly twelve (and thoſe very probably *Lunar*) Months in the *Tropical* Year alſo; and ſince it appears by the *third* Part, that there were juſt 30 Days in each Lunar Revolution at the ſame Time: 'Tis evident from all three taken together, that before the Deluge, the Lunar Year at leaſt, and very probably the *Solar* alſo, conſiſted exactly of 12 Lunar Months of 30 Days apiece, or of 360 Days in the whole.

Vide Not. (*f*) p. 158. Et Not. (*q*) p. 161. prius. Et Arg. ult. partis primæ, p. 161, 162.

(7.) That not only the *Civil*, but alſo the *Tropical* Year of the Sun, and the *Lunar* Year of 12 Synodical Lunar Months too, were each of

---

(*x*) Panodorus apud Syncel. p. 41. ait Egregoros Solarem periodum & Lunarem hominibus oſtendiſſe: Οἱ ὑποβλέψαντες εἰς τὸ ἀκριβέστερον, μικρότερον, καὶ εὐσηλότερον, διακοσιοστήμερον τελείωσιν κύκλον ἐθέσπισε, εἰς ἐνιαυτὸν ἀριθμεῖσθαι διὰ τὸ καὶ τὸν ἡλίου κύκλον ἐν τοῖς αὐτοῖς δώδεκα ζωδίοις πληροῦσθαι ἐν ἰσαρίθμοις μοίραις τξ'. Ὅθεν συνέβη τὰς βασιλείας τῶν παρ' αὐτοῖς βασιλευόντων Θεῶν γενεῶν ἓξ ἐν διακοσιοστήμερος ἓξ, κατ' ἔτη ἐν τελείωσιν διακοσίοις τριακονθημέροις κύκλοις παρ' αὐτοῖς ἀριθμεῖσθαι· ἃ καὶ σωῆξαι σελήνια Μα' πή ἔτη, ἡλιακὰ ξθ'.

them 360 Days, and exactly equal to each other before the Deluge, is farther atteſted by a famous Piece of ancient Mythology preſerv'd in *Plutarch*, which I have had Occaſion to mention before : That about the Times of *Oſiris* and *Typhon*, that is, about the Deluge, there happen'd ſuch an Alteration both in the Month and the Year, that the *Moon loſt* a 70th Part of each Day, and the *Sun gain'd* it ; whereby the *Lunar* Year became above 5 Days *ſhorter*, and the *Solar* Year above 5 Days *longer* than each of them were before. Wherefore, ſince the *Solar* Year is now ſomewhat *more* than 365 Days, and the *Lunar* Year ſomewhat *leſs* than 355 Days ; 'Tis moſt evident, that before this Change, both the *Solar* and the *Lunar* Year were juſt 360 Days, and exactly equal to each other : Nay more, 'tis evident alſo, that the Change made in the Solar and Lunar Revolutions, from their Original to their preſent State and Periods, happen'd at the Deluge.

Vide Not. (*b*) pag. 146. prius. Lem. 1. *to this and the laſt Argument.*

(8.) All this will be abundantly confirm'd, if a Natural, Eaſy, and Philoſophical Account can be given of this Change of the Solar and Lunar Revolutions at the Deluge. I ſay, if the ſame Cauſe, which alone appears ſufficient to drown the World, and to ſolve all the numerous *Phænomena* relating to the Deluge, will alſo neceſſarily produce the aforeſaid Changes in the Solar and Lunar Revolutions ; Then I think this Propoſition will have all the Evidence for it, that any one can deſire. And that all this may be effected by the Approach of a Comet to the Earth, will, I believe, appear fully to the Satisfaction of thoſe who ſhall carefully read and digeſt the preſent Theory, or even the following *Hypotheſis*, only ; to which therefore the Reader is referr'd.

Upon

Upon the whole, ſince the Year of 360 Days, and the Month of 30 Days, appear to have been originally in uſe in ſo many Parts of the *Poſtdiluvian* World; ſince all the Accounts of the *Antediluvian* World that are extant, namely, that of the Holy Scriptures, and thoſe of the *Chaldeans* and *Egyptians*, do each of them reſpectively give Evidence for the *Civil* Uſe of this Year and Month before the Deluge; ſince ſome of them go farther ſtill, and prove that the *Tropical Solar* Year, and *Lunar* Month, were then of the ſame Length reſpectively: If, *laſtly*, the natural and neceſſary *Cauſe* of theſe remarkable Changes in the Solar and Lunar Year at the Deluge, is in the following *Hypotheſis* effectually prov'd, not only from Hiſtorical Evidence, but alſo from Natural Philoſophy and the preſent State of the World; I cannot well perceive, how this Propoſition comes ſhort of Phyſical Demonſtration: But this I am ſure of, that it has a much greater Degree of Evidence than moſt Propoſitions of this Nature can pretend to.

Coroll. *Since therefore we have ſuch abundant Evidence, that the* Civil Year *in ſo many Places, both before the Deluge, and for many Ages after it; and that even the* Tropical *and* Lunar *Year before the Deluge, were reſpectively, juſt* 360 *Days in Length; 'tis very probable, that the ancient Kings who reign'd in any Age and Nation where this Year was in Civil Uſe, computed the Years of their Reigns by this Standard of* 360 *Days to a Year. It may therefore very well deſerve our Enquiry, whether ſeveral Difficulties in the Ancient* Poſtdiluvian *Chronology may not ſometimes be taken away, by ſubſtituting this* Primitive *Year of* 360 *Days, inſtead of the* Julian *or* Tropical *Year, now commonly made uſe of by Chronologers. I ſay,* ſometimes;

for it may happen, that the Years propos'd might formerly have been reduc'd by ancient Authors, from the Primitive *Form to the* Tropical *or* Nabonaſſarean, *or* Julian *Form: Or 'tis poſſible that the Primitive Year might ſometimes have been in Civil Uſe as to ſome Inſtances only, and yet at the ſame Time, the* Tropical, Nabonaſſarean, *or ſome other Form of Year might have been made uſe of in the given Inſtance. But otherwiſe, the Uſe of the* Julian *Year (without a previous Reduction) in thoſe Inſtances where the Primitive Year is meant, muſt certainly breed much Confuſion in Chronological Computations, ſince* 487 *Primitive Years are no more than* 480 Julian *ones.*

XI. A Comet, cutting the Plane of the Ecliptick, in its Deſcent towards its *Perihelion*; on the firſt Day of the Deluge, paſs'd before the Body of our Earth.

That ſuch a Poſition of a Comet's Orbit, and ſuch a Paſſage by as is here ſuppos'd, are in themſelves poſſible, and agreeable to the *Phænomena* of Nature, All competent Judges, who are acquainted with the new and wonderful Diſcoveries in Aſtronomy, according to the *Lemmata* hereto relating, muſt freely grant. But that it really did ſo at the Time here ſpecified, is what I am now to prove. 'Tis true, when upon a mere Suppoſition of ſuch a Paſſing by of a Comet, I had in my own Mind obſerv'd the *Phænomena* relating to the Deluge to anſwer to Admiration, I was not a little ſurpriz'd, and pleas'd at ſuch a Diſcovery. It gave me no ſmall Satisfaction to ſee, that, upon a poſſible and eaſy *Hypotheſis*, I could give ſo clear an Account of thoſe Things,

Lem. 45, &c. *prius.*

which

which had hitherto prov'd ſo hard, not to ſay inexplicable; and could ſhow the exact Coincidence of the Particulars with the Sacred Hiſtory, and the *Phænomena* of Nature. I thought to be able to proceed ſo far, was not only more than had been yet done, more than was generally expected ever would be done; but abundantly ſufficient to the beſt of Purpoſes, to clear the Holy Scriptures from the Imputations of ill-diſpoſed Men, and to demonſtrate the Account of the Deluge to be in every Part neither impoſſible nor unphiloſophical. But proceeding in ſome farther Thoughts and Calculations on the ſaid *Hypotheſis*, to my exceeding great Content and Admiration, I found all Things to correſpond ſo ſtrangely, and the Time of the Year by ſeveral concurring ways to be ſo exactly fix'd, agreeably to the Sacred Hiſtory thereby; that, as I ſaw abundant Reaſon my ſelf to reſt ſatisfied of the Reality, as well as Probability of what I before barely ſuppos'd; ſo I thought the producing the Particulars I had diſcover'd, might afford Evidence to the Minds of others, and go a great way to the entire Eſtabliſhing the Certainty of that, of whoſe great Probability the Correſpondence of the ſeveral *Phænomena* of the Deluge had before afforded ſufficient Satisfaction. But before I come to the Arguments to be here made uſe of themſelves, give me leave, by way of Preparation, to ſhew what Sort of Evidence ſuch Aſſertions as this before us, when good and valid, are capable of; and how great or ſatisfactory it may be in any other, and ſo may be expected to be in the preſent Caſe.

'Tis evident, that all Truths are not capable of the ſame Degree of Evidence, or Manner of Probation. Firſt Notions are known by

Intuition, or ſo quick and clear a Perception, that we ſcarce obſerve any Deduction or Ratiocination at all in our Aſſent to them. Some principal Metaphyſical Truths have ſo near a Connexion with theſe, that the Manner of reaſoning or inferring is ſcarce to be trac'd or deſcrib'd; a few obvious and quick Reflections enforcing our hearty Acquieſcence: Among which, the beſt of Metaphyſicians, Mr. *Lock*, in his *Eſſay of Human Underſtanding*, very rightly places the Being of God. Purely Mathematical Propoſitions are demonſtrated by a Chain of Deductions, each of which is certain and unqueſtionable. So that on a clear View of the Truth and Connexion of each Link, or Member of the entire Argumentation, the Evidence may ſtill be look'd on as infallible. Propoſitions in mix'd Mathematicks, as in Opticks, Geography, and Aſtronomy, depending partly on abſtract Mathematick Demonſtrations, and partly on the Obſervations of the *Phænomena* of Nature; tho' not arriving to the ſtrict Infallibility of the Evidence with the former Sort, are yet juſtly in moſt Caſes allow'd to be truly certain and indubitable. Hiſtory is all that we commonly can have for Matters of Fact paſt and gone; and where 'tis agreed upon by all, and uncontroulable, 'tis eſteem'd fully ſatisfactory, tho' not abſolutely certain, in common Caſes. And, Laſtly, To come cloſer to the Point, the Knowledge of Cauſes is deduc'd from their Effects. Thus all Natural Philoſophy, *i. e.* the Knowledge of the Cauſes of the ſeveral viſible *Phænomena* of the World, is ſolely deriv'd from thoſe Effects, or *Phænomena* themſelves, their accurate Correſpondence to, and neceſſary Dependance on certain ſuppoſed Cauſes, and their Inſolubility on any other *Hypothe-*

Lib. iv. c. 10.

potheſes, with the Coincidence of the particular Calculations of the Quantities of Motion, Velocity, Periods, and *Species* of Figures to be every where accounted for. On the Univerſal Conſpiration and Correſpondence of which, with the Impoſſibility of producing an Inſtance to the contrary, depends what may be truly ſtil'd a *Phyſical Demonſtration*. I mean, Then, and only Then is a Phyſical Cauſe to be eſteem'd *Demonſtrated*, when all the *Phæuemena* of the World may be certainly ſhewn to be juſt ſo, and no otherwiſe, as they neceſſarily would, and muſt be on Suppoſition thereof. This laſt Method is that which our beſt of Philoſophers, Sir *Iſaac Newton*, has taken in his Demonſtration of the Univerſal Affection or Property of Bodies, which he calls *Mutual Attraction* or *Gravitation*, and which accordingly he has eſtabliſh'd beyond Poſſibility of Contradiction; and this is the ſole way of bringing Natural Knowledge to Perfection, and extricating it from the little *Hypotheſes*, which, in Defect of true Science, the World has till lately been forc'd to be contented with.

In the Point before us, there are only three poſſible Ways of proving the Truth of the Aſſertion here laid down. The *firſt*, that of Propoſitions in mix'd Mathematicks, by Calculation of the Motion of ſome Comet, as we do of Planets from the Aſtronomical Tables, and thence demonſtrating the Certainty thereof: Which tho' I was deſtitute of in my two former Editions, yet have I now obtain'd, from later Obſervations: Which moſt convincing Evidence I ſhall at large give the inquiſitive Reader in the very Words of that particular Diſſertation which I have formerly publiſh'd under the Title of, *The Cauſe of the Deluge demonſtrated*, a little corrected as follows.

The

The Cauſe of the Deluge demonſtrated.

Before I proceed to my preſent *Demonſtration of the Cauſe of the Deluge*, I muſt premiſe this; That in my *New Theory of the Earth*, eſpecially as improv'd and corrected in the Second Edition, I have evidently ſhewn, that in caſe a Comet paſs'd by, before the Earth, in its annual Courſe, on the 17th Day of the Second Month, from the Autumnal Equinox, or *November* 28. in the 2349th Year before the Chriſtian Æra, the *Phænomena* of Nature and Hiſtory, and particularly the *Moſaick* Account of the Deluge of *Noah*, which are no otherwiſe to be accounted for, are exactly explain'd; that the Calculations and Proportions, where-ever we can come at them, are on that Hypotheſis right, agreeable to one another, to Ancient, eſpecially Sacred Hiſtory, and to the Syſtem of Aſtronomy; that there are Traces in ancient Books of a Tradition, that a Comet did appear at the very Beginning of the Deluge; that the very Month and Day mention'd by *Moſes* for ſuch its Beginning, is atteſted to by other old Records, and, on this Hypotheſis, by Aſtronomical Calculations alſo: Whence I concluded, that it was moſt highly probable, or rather phyſically demonſtrable, that a Comet did paſs by at that Time; and was, under the Conduct of the Divine Providence, and as his Inſtrument in puniſhing a wicked World, the Cauſe of the Deluge. The only Thing wanting, was, to demonſtrate from the Period of ſome Comet, and its Situation in the Heavens, Aſtronomically ſtated and computed, that ſuch a Comet did actually come by at that very Time: Which if it could be once ſhown, the whole muſt be own'd as certain, and demonſtrated, and all the natural Corollaries there-

from

from muſt be allow'd as true, even by the Obſtinate and Incredulous. This indeed, at firſt, was look'd upon by me as not at all to be expected; ſince we then barely began to know, or rather ſtrongly to conjecture, that Comets did revolve about the Sun in ſettled Periods, but without being able to determine any one of thoſe Periods. But of late God has ſo bleſs'd the Labours of the Learned; and this Part of Aſtronomy is ſo much improv'd, eſpecially by the farther Pains and Obſervations of the great Inventor himſelf, Sir *Iſaac Newton*; whoſe Name will never be forgotten, while Mathematicks and Aſtronomy are preſerv'd among Mankind; and by the laborious Calculations of the acute Dr. *Halley*, on the Principles laid down by the former; that what was a few Years ago almoſt deſpair'd of, is now in great meaſure diſcover'd, and we know, not only that One Comet has come round three or four times already in later Ages, *viz.* *A. D.* 1456, 1531, 1607, and 1682, and will no doubt come round again *A. D.* 1758, as making its Period in about 75 Years; that another has probably come round in the ſame later Ages twice already, *viz.* *A. D.* 1532, and 1661; and ſo is to return *A. D.* 1789, or 1790, as making its Period in about 129 Years: But, which is the greateſt Diſcovery of all, that the laſt moſt remarkable Comet, whoſe Deſcent into our Regions has occaſion'd almoſt all the modern ſolid Knowledge we have relating to the whole Cometick Syſtem it ſelf, has alſo ſeveral times been ſeen already, within the Time of certain Records; I mean, in the 44th Year before Chriſt, and again *A. D.* 531, or 532; and yet a-

gain *A. D.* 1106, beſides this its laſt Appearance *A. D.* 1680; whereby we know that it revolves in about 575 Years. This laſt Comet I may well call the *moſt remarkable one* that ever appear'd; ſince beſides the former Conſideration, I ſhall preſently ſhew, that it is no other than that very Comet which came by the Earth at the Beginning of *Noah*'s Deluge, and which was the Cauſe of the ſame. Now conſidering the Premiſes, I ſhall only have Occaſion, in order to my preſent Deſign, to prove theſe five Things concerning it. (1.) That no other of the known Comets could paſs by the Earth at the Beginning of the Deluge. (2.) That this Comet was of the ſame Bigneſs with that which paſs'd by at that Time. (3.) That its Orbit was then in a due Poſition to paſs by at that Time. (4.) That its deſcending Node was then alſo in a due Poſition for the ſame Paſſage by. (5.) That its Period exactly agrees to the ſame Time. Or, in ſhort, that all the known Circumſtances of this Comet do correſpond, and that it actually paſs'd by on or about that very Year, and on or about that very Day of the Year when the Deluge began. All which Things I ſhall demonſtrate in their Order.

I. None of the other Comets yet known, I mean of the 21 in Dr. *Halley*'s Table and my *Solar Syſtem*, could be that which paſs'd by the Earth at the Beginning of the Deluge. This appears by theſe certain Arguments following.

New Theo. 2d Edit. *Coroll.* 2. *Lem.* 86. & p. 203, 204.

(1.) None of them appear to have been of a due Bigneſs: For the *Phænomena* of the Deluge, as I have elſewhere ſhew'd, require a ſmall one in Compariſon of the Earth; whereas the reſt of the Comets ſeem to have been commonly larger than it.

(2.) None

(2.) None of their deſcending Orbits are duly ſituate, I mean between 90 and 100 Degrees from *Aries*: Which Poſition is yet abſolutely neceſſary in this Caſe. For the Preceſſion of the Equinox, which is about 50 Degrees, added to the 46 Degrees that the Earth was diſtant from *Aries* when the Flood began, muſt ſuppoſe the deſcending Orbit of the Comet to be now between 90 and 100 Degrees from *Aries*: At which Place none of the deſcending Orbits of the other Comets are now ſituate; as Dr. *Halley*'s Table, and my Solar Syſtem grounded thereon, will readily ſhew. (3.) None of the other's Nodes are ſo ſituate, as is neceſſary to bring the Comet near enough to our Earth; I mean, between 90 or 100 Degrees from *Aries*; and ſo as to croſs the Plane of the Ecliptick very near to the Diſtance of the Earth from the Sun; as is alſo plain from the ſame Table and Syſtem. Nay indeed, the wrong Situation of the deſcending Orbits, noted under the laſt Head, renders this due Situation of the Nodes plainly impoſſible. For it being neceſſary, that the Orbit it ſelf interſect the Ecliptick it ſelf in the 17th Degree of *Taurus*; this cannot poſſibly be in ſuch a Situation of the Orbit, as that we have already mention'd to belong to all the reſt of the known Comets. So that theſe other Comets were utterly incapable of being inſtrumental in the Deluge, even tho' their Periods ſhould any of them agree; which yet we know not that any of them do.

II. This Comet was of the ſame Bigneſs with that which paſs'd by at that Time; I mean a very ſmall one, and only 10 times as large as the Moon. This appears by Mr. *Flamſtead*'s Determination of its apparent Diameter, about 20″ when it was nearly as far off as the Sun: Where- *Ubi ſupra.*

as

as he ſuppoſes that of the Moon at the ſame Diſtance to be about 6″. So that if the Allowance be made for that large and denſe Part of the Atmoſphere, which hides the *Nucleus* or Comet it ſelf from us, ſuppoſe 7″, the Diameter of the ſolid Body it ſelf will be only 13″. Now the Cube of 13, or 2197, is to the Cube of 6, or 216, as about 10 to 1. Whence it appears, that this Comet is about 10 times ſo big as the Moon, or $\frac{1}{4}$ ſo great as the Earth, as the real Comet that occaſion'd the Deluge ought to be.

III. The deſcending Part of the Orbit of this Comet was about the 17th Degree of *Taurus* at the Time of the Deluge, as that of the Comet at the Deluge muſt have been. For this deſcending Orbit is now in the 2d Degree of *Cancer*; and if we allow 46 Degrees for its apparent Motion ſince the Deluge, which is very little different from the real Preceſſion of the Equinox, the main, if not only Occaſion of it; it will appear to have been in the 17th Degree of *Taurus* at that Time, according to the foregoing Computation.

IV. The deſcending Node of this Comet, which is of the greateſt Conſideration here, and liable to the greateſt Variety of all, does alſo exceeding well agree in the preſent Caſe. For this is now in the 3d Degree of *Cancer*; and if we allow, as before, 46 Degrees for its apparent Motion ſince the Deluge, or for the real Preceſſion of the Equinox, the main, if not only Cauſe of it, it will appear to have been in the 17th of *Taurus* at that Time alſo. Nay, if we allow the leaſt Inequality in theſe two Motions, or the leaſt Alteration of the Planes either of the Ecliptick or of the Comet's Orbit, or of both, as we juſtly may,

both

both from the Phyſical Cauſes, and Aſtronomical Obſervations, we may ſuppoſe them ſtill nearer the Earth's Diſtance from the Sun, and ſo more exactly ſuitable to the Caſe of the Deluge.

V. The Period of this Comet moſt exactly agrees to the ſame Time, I mean to 7 Revolutions in 4028 Years, the Interval from the Deluge till its laſt Appearance 1680. For, as Sir *Iſaac Newton* firſt obſerv'd, from its Elliptick Curvature before it diſappear'd, that its Period muſt be in general above 500 Years; ſo has he and Dr. *Halley* ſince obſerv'd, that the ſame Comet has been ſeen four times; *viz.* the 44th Year before Chriſt; *A. D.* 531 or 532, *A. D.* 1106, and *A. D.* 1680; and that by conſequence, it makes a Revolution in about 575 Years. Now if we make but a very ſmall Allowance for the old Periods before Chriſt, and ſuppoſe that, one with another, it has revolv'd in $575\frac{1}{2}$ Years, we ſhall find that 7 ſuch Periods amount to 4028 Years, exactly, according to that Number ſince the Deluge. This is ſo remarkable an Obſervation, and ſo ſurprizing, that it will deſerve a particular Demonſtration from the original Authors themſelves. To begin then with the firſt of the Appearances recorded in later Hiſtory, I mean that in the 44th Year before Chriſt, the Year that *Julius Cæſar* was ſlain; we have no fewer nor leſſer Perſons than *Seneca*, *Suetonius*, *Plutarch* and *Pliny*, to atteſt it; and the laſt, as bringing *Auguſtus*'s own Words for his Voucher. Take the Account in thoſe Words, as being the moſt authentick and remarkable. "On thoſe very Days, ſays *Auguſtus*, when I was exhibiting "ſome Games to the People, [begun about *Sept.* "26.] a Comet appear'd for 7 Days, and was ſeen "in the *Northern* Part of Heaven. It roſe about "the

Princip. 2d Edit. p. 465.

Sen. Nat. Quæſt. l. 7. c. 17. *Sueton. in Jul.* c. 88. *Plut. in Cæſar.* *Plin. Hiſt. Nat.* l. 2. c. 24. *Grut. ap. Uſſer. Annal.*

" the 11th Hour of the Day: It was a remarkable " one, and visible all over the World. The com- " mon People believ'd, that it signify'd the Re- " ception of the Soul of *Cæsar* into the Number of " the immortal Gods. On which Account, the " Image of this Star was added to that Statue repre- " senting *Cæsar*'s Head, which we a while after " consecrated in the *Forum*." Accordingly it is known, that some of *Cæsar*'s Coins have a Star upon them, for a Memorial of this Comet; and observable that *Virgil* hints at the same also, *Patrium aperitur vertice sidus*. *Plutarch*'s, *Seneca*'s, and *Suetonius*'s Words are almost the very same that are included in the Passage from *Augustus*, and so need not be distinctly set down. Only the Time of its Rising is by *Suetonius* set down *about the 11th Hour*, without the Words *of the Day*, which the other two have; and its *Northern* Position is only mention'd by *Augustus* himself. Now if we interpret the 11th Hour, or 11th Hour of the Day, to be either 11-a-clock before Noon, or an Hour before Sun-set, this will render the whole almost incredible: it being next to impossible, that this Comet should be seen in the Day-time. But the *Romans* then accounting Midnight the Beginning of their Day, as is well known by Chronologers, we may reckon this 11th Hour to be 11 at Night, and all will agree to the Comet before us; and it will shew, that as it had been conceal'd by cloudy Weather for some Time, so it now appear'd ascending from the Sun, with its long and splendid Tail, for a Week before the like cloudy Weather, or the Comet's too great Remoteness render'd it no longer observable. Accordingly the *Northern* Position of this Comet, noted here by *Augustus*, secures us still farther, that it must have been the same with that *A. D.* 1680, which is ever in the

Æneid. VIII.

same

ſame Poſition, at the ſame Place of its Orbit: To ſay nothing of its remarkable Brightneſs, which I take to belong to its Tail, and which render'd it ſo very remarkable then in the World: In which Point it as well or better agrees with this, than with any other in the whole Cometary Syſtem. So that on all theſe Accounts, the Comet ſeen then by the *Romans*, and that ſeen *A. D.* 1680, muſt have been one and the ſame Comet. The next Period when this Comet might be ſeen again, according to the foregoing Time of its Revolution, was *A.D.* 531, or 532. When yet we hear nothing of it in *Hevelius*'s Hiſtory of Comets. But then we have it in *Lubienietz*'s more exact Catalogue, out of *Zonaras*, the original Hiſtorian, whoſe Words are theſe, *Annal. L.* xiv. *p.* 61. "In the 5th Year of the Em-
" peror *Juſtinian* [*A. D.* 531, or 532] a Comet ap-
" pear'd, of that Sort which is called *Lampadias*.
" It ſent its bright Tail upward, and continued to
" ſhine 20 Days." Which Words exactly agree to this Comet. The next Period when it was to be expected, was *A.D.* 1106. at which Time the Hiſtorians are full of their Accounts of it. Take thoſe Accounts in their own Words, as they ſtand in *Hevelius* and *Lubienietz*, who have given us a moſt compleat Collection of them in their Hiſtories of Comets.

A. D. 1106. We ſaw a Comet of wonderful Brightneſs, from the firſt Week in *Lent*, until the Paſſion of our Lord. An extraordinary Star was ſeen to ſhine this Year on *Friday* in the Evening, *Southward* and *Weſtward*, and appear'd bright for 25 Days together, and always at the ſame Hour. *Lavath. ex Urſpurg.* p. 148.

A. D. 1106. in the Month of *February*, 2 Days after the New Moon, a great Comet appear'd *South-Weſtward*. *A. D.* 1106. a Comet appear'd like a Fire, almoſt all the Month of *February*. *Lavath. ex Chron. Norimb. vel aliunde.* *Calviſ. ex Tyr.* *Myzald.* p. 140.

A very great Comet was ſeen in the Time of

Sigebert. Func. *Lent.* *Prætorius* adds, That the Emperor *Hen.* IV. died the ſame Year; which *Calviſius* alſo agrees to.

A. D. 1106. A Star, which we call a Comet, appear'd.

Append. Marian. Scoti. Exſtorm. ex Chron. Saxon. Hiſt. Eccl. ex Simeone Dunelmen. *A. D.* 1106. A dreadful Comet appear'd, from the firſt Week in *Lent*, till the Vigil of *Palm-Sunday*. The ſame Year the Emperor *Henry* IV. died.

On the Year of our Lord 1106, the 14th of the Calends of *March*, [*Feb.* 16.] a certain ſtrange Star was diſcover'd, and was ſeen to ſhine between the *South* and *Weſt* for 25 Days, after the ſame manner, and at the ſame Hour. It ſeem'd to be ſmall and obſcure; but that Light which went out from it was exceeding bright, and a Splendor, like a great Beam, proceeded from the *Eaſt* and *North*, and ſhot it ſelf upon the ſame Star.

In theſe Teſtimonies, we may ſee that all the Circumſtances of this Comet agree to that of *A. D.* 1680. I mean the Smallneſs and Obſcurity of its Nucleus, the Brightneſs and Remarkableneſs of its Tail, its Poſition *South-Weſt*, and the Direction of its Tail *North-Eaſt*. So that there is no Reaſon to doubt, but it was the very ſame. Only we muſt here note, that theſe two Periods were, one with another, three Quarters of a Year ſhorter than the laſt Period. For from *September*, in the 44th Year before Chriſt, till *February* or *March A. D.* 1106. are but $1148\frac{1}{2}$ Years, or two Periods of $574\frac{1}{4}$ apiece, one with another: Whereas from the ſame *February* or *March*, *A. D.* 1106. till *February* or *March* $168\frac{0}{1}$, when this Comet was about the ſame Poſition again, there are juſt 575 Years. It is rather a Wonder, that the three laſt Periods of our famous Comet are ſo very nearly equal, than that there is this ſmall Inequality among them. Nor is it, by the way, any Wonder therefore, that the four firſt Periods after the Deluge are to be ſuppos'd

pos'd one with another rather above 576 Years, to agree exactly to that Time. 'Tis rather a Queſtion, whether the reſt of the Comets Periods will prove any of them near ſo equal in Proportion, as even that Allowance makes theſe to be? Accordingly, Sir *Iſaac Newton* and Dr. *Halley* rightly obſerve, that theſe Cometary Orbits are the moſt eaſily and ſenſibly diſturb'd, by the occaſional Nearneſs of their Comets to other Bodies of all others; and ſo conſiderable Inequalities are to be expected among them. *Princip.* p. 480. *Prælect. Phyſico-Math.* p. 358, 359.

Note, (1.) That it is highly remarkable, that this is the only Comet yet known, whoſe Node renders it capable of approaching very near the Body of the Earth, and that the ſame Node is ſtill ſo little remote from the Earth's Orbit, as Dr. *Halley* well obſerves, that it brought this Comet about as near to the ſame as the Moon this very laſt Time. Hear his remarkable Words, and conſider the Conſequence of them in this Matter. "No Comet, ſays "he, has hitherto threaten'd the Earth with a "nearer Appulſe than that of 1680. For by Cal-"culation, I find that *Nov.* 11th 1 h 6' after Noon, "that Comet was not above a Semidiameter of "the Sun, (which I take to be equal to the Di-"ſtance of the Moon) to the *Northwards* of the "Way of the Earth. At which Time, had the "Earth been there, the Comet would, I think, "have had a Parallax equal to that of the Moon." *Synopſ. Comet. in calce.*

Nor can I paſs over his following Words without ſetting them down, they are ſo appoſite to my preſent Purpoſe. "The former Obſervations, ſays "he, are to be ſuppos'd as ſpoken to Aſtrono-"mers. But what might be the Conſequences of "ſo near an Appulſe, or of a Contact, or laſtly, "of a Colliſion of theſe celeſtial Bodies, (which "are none of them impoſſible) I leave to be diſ-"cuſs'd by the Philoſophers.

(2.) Since this Comet's Period is 575 Years, its middle Diſtance muſt be about 5,600,000,000 Miles from the Sun; its longer Axis and greateſt Diſtance twice ſo long, or nearly 11,200,000,000 Miles; its Aphelion Diſtance about 14 times as great as the Diſtance of *Saturn*; its greateſt Diſtance to its leaſt, as above 20,000 to 1: And ſo its greateſt Light and Heat to its leaſt, as above 400,000,000 to 1.

(3.) Since 575 Years appears to be the Period of the Comet that caus'd the Deluge, what a Learned Friend of mine, who was the Occaſion of my Examination of this Matter, ſuggeſts, will deſerve to be conſider'd, *viz.* Whether the Story of the Phœnix, that celebrated Emblem of the Reſurrection in Chriſtian Antiquity; [that it returns once after 5 Centuries, and goes to the Altar and City of the Sun, and is there burnt; and another ariſes out of its Aſhes, and carries away the Remains of the former, *&c.*] be not an Allegorical Repreſentation of this Comet; [which returns once after 5 Centuries, and goes down to the Sun, and is there vehemently heated, and its outward Regions diſſolv'd; yet that it flies off again, and carries away what remains after that terrible burning, *&c.*] and whether the Conflagration and Renovation of Things, which ſome ſuch Comet in its Aſcent from the Sun may bring upon the Earth, be not hereby prefigur'd, I will not here be poſitive; but I own, that I don't know of any Solution of this famous Piece of *Egyptian* Mythology and Hieroglyphicks, as this ſeems to be, that can be compar'd with it.

Note, (4.) That none of thoſe Comets whoſe Orbits are yet known, can come near enough to our Earth in their Aſcent from the Sun, to cauſe the Conflagration. This is evident to thoſe who conſider Dr. *Halley*'s Table, or my Solar Syſtem built upon

upon it; ſince none of them move in or very near the Plane of the Ecliptick; and thoſe four which have their Nodes neareſt the Earth's Orbit, and ſo might approach neareſt to the Earth, are either ſuch as have theſe Nodes ſo near only in their Deſcent to the Sun; as that in 1472, and that in 1618, and that in 1680; or go not any time much nearer to the Sun than the Earth it ſelf, as that in 1688, and ſo are on all Accounts utterly incapable of affording Heat enough for ſuch a Conflagration.

Note, (5.) That therefore the Period of Time for that Conflagration, upon the Suppoſition that it is to be cauſed by a Comet, cannot now be diſcover'd by any natural Means; but muſt ſtill remain, as formerly, only knowable from Divine Revelation. *New Theory*, p. 450, 453.

Note, (6.) That hence thoſe remarkable Corollaries, drawn from the accurate Solution of ſuch Difficulties now, as formerly were plainly inſoluble; I mean, the great Regard due to the Ancienteſt Sacred and Prophane Records, and to the inſpir'd Method whence they muſt have been deriv'd; the Imperfection of Human Knowledge; the Folly of rejecting Reveal'd Truths, out of regard to uncertain Human Reaſonings; the Wiſdom of adhering to the moſt obvious Senſe of Scripture; the Reaſonableneſs of believing Scripture-Accounts and Scripture-Myſteries, tho' not fully comprehended by us; the Juſtneſs of expecting Satisfaction in moral Difficulties in due Time, from the like Satisfaction afforded already in thoſe that are Philoſophical, and the like, do all receive a new and ſurprizing Confirmation; and will therefore deſerve a new and ſerious Conſideration.

N. B. *Dr.* Halley *having himſelf given an Account of this Comet lately in Dr.* Gregory's Engliſh Aſtronomy, *p.* 901, 902, 903; *I here preſent it to the*

Reader verbatim, *that he may compare the two Accounts together, for his more entire Satisfaction.*

" But as far as Probability from the Equality of " Periods, and similar Appearance of Comets, " may be urged as an Argument, the late wonderous Comet of $168\frac{8}{12}$, seems to have been the " same, which was seen in the Time of our King " *Henry* I. *Anno* 1106, which began to appear in " the *West* about the middle of *February*, and continued for many Days after, with such a Tail as " was seen in that of $168\frac{8}{12}$. And again in the Consulate of *Lampadius* and *Orestes*, about the Year " of Christ 531, such another Comet appear'd " in the *West*, of which *Malela*, perhaps an Eyewitness, relates, that it was μέγας καὶ φοβερὸς, a " *great and fearful Star*; that it appear'd in the " *West*, and emitted upwards from it a long white " Beam; and was seen for 20 Days. It were to " be wish'd, the Historian had told us what Time " of the Year it was seen; but 'tis however plain, " that the Interval between this and that of 1106, " is nearly equal to that between 1106 and $168\frac{8}{12}$, " *viz.* about 575 Years. And if we reckon backward such another Period, we shall come to " the 44th Year before *Christ*, in which *Julius* " *Cæsar* was murder'd, and in which there appear'd a very remarkable Comet, mention'd " by almost all the Historians of those Times, " and by *Pliny* in his Natural History, *l.* 11. *c.* 24. " who recites the Words of *Augustus Cæsar* on " this Occasion, which lead us to the very Time " of its Appearance, and its Situation in the Heavens. These Words being very much to our " Purpose, it may not be amiss to recite them. " *In ipsis Ludorum meorum diebus, sydus crinitum* " *per septem dies, in regione Cœli quæ sub Septen-* " *trionibus est conspectum. Id oriebatur circa unde-*

" *cimam*

" *cimam horam diei, clarumque & omnibus terris*
" *conſpicuum fuit.* Now theſe *Ludi* were dedicated
" *Veneri genetrici*, (for from *Venus* the *Cæſars*
" would be thought to be deſcended,) and began
" with the Birth-day of *Auguſtus*, viz. *Sept.* 23. as
" may be collected from a Fragment of an old *Ro-*
" *man* Kalendar extant in *Gruter*, p. 135. and con-
" tinued for 7 Days, during which the Comet ap-
" pear'd. Nor are we to ſuppoſe that it was ſeen
" only thoſe 7 Days, but poſſibly both before and
" after. Nor are we to interpret the Words *ſub*
" *Septentrionibus*, as if the Comet had appear'd in
" the *North*, but that it was ſeen under the *ſeptem*
" *triones*, or brighter Stars of *Urſa major*. And as
" to its Riſing *hora undecima diei*, it can no ways
" be underſtood, unleſs the Word *diei* be left out,
" as it is by *Suetonius*; for it muſt have been very
" far from the Sun, either to riſe at 5 in the Af-
" ternoon, or at 11 at Night; in which Caſes it
" muſt have appear'd for a long Time, and its Tail
" have been ſo little remarkable, that it could by
" no means be call'd, *Clarum & omnibus Terris*
" *conſpicuum Sydus*. But ſuppoſing this Comet
" to have traced the ſame Path with that of the
" Year 1680, the aſcending Part of the Orb will
" exactly repreſent all that *Auguſtus* hath ſaid con-
" cerning it; and is yet an additional Argument
" to that drawn from the Equality of the Peri-
" od. Thus 'tis not improbable but this Comet
" may have four times viſited us at Intervals of
" about 575 Years: Whence the Tranſverſe
" Diameter of its Elliptick Orb will be found
" $\sqrt[3]{575\times575}$ times greater than the annu-
" al Orb; or 138 times greater than the mean
" Diſtance of the Sun; which Diſtance, tho'
" immenſely great, bears no Proportion to that
" of the fix'd Stars.

The *ſecond* Way of Probation, is that of Hiſtorical Relation, That at the Deluge a Comet did ſo paſs by. And of this Sort of Evidence we are not wholly deſtitute; For, (1.) that a Comet did really appear at the Deluge, we have the Teſtimony of ſeveral Authors in *Hevelius*'s *Cometographia*. Nay, (*a*) *Pliny* alſo, a learned *ancient* Author, and probably from the *Egyptian* Records too, not only mentions a Comet that appear'd in the Reign of *Typhon*, (that is, at the Deluge, or immediately before it, as has already been prov'd) but alſo ſpeaks of the direful Effects it had. Which Teſtimony, conſidering how few Remains we have of thoſe ſo very ancient Times in prophane Authors, is very remarkable, and of great Weight: Eſpecially when he ſays, that *Typhon gave it its Name*; inſomuch that the Mythology of *Typhon*, or *Typhoëus* in the Poets, may ſeem to have a plain Reference to the Comet, and that Deluge which was occaſion'd by it; as indeed many of the Particulars are ſo like, (*b*) that one can hardly avoid thinking

Lib. xii. p. 794.

P. 172, 173. prius.

(*a*) *Plin. Hiſt. Nat.* ii. 25. Diraque comperta Æthiopum & Ægypti populis, cui nomen ævi Rex dedit Typhon, ignea ſpecie, & ſpiræ modo intorta, viſu quoque torvo, nec ſtella verius quam quidem igneus nodus.

(*b*) Apollodor. Bibliothec. l. 1. c. 6. §. 3. Ὡς δ' ἐπεφάνησαν οἱ Θεοὶ τοὺς Γιγάντας, Γῆ μᾶλλον χολωθεῖσα, μίγνυται Ταρτάρῳ, καὶ γίνεται Τυφῶνα ἐν Σικελίᾳ, μεμιγμένον ἔχοντα φύσιν, ἀνδρὸς καὶ θηρίου. Οὗτος μὲν καὶ μεγέθει καὶ δυνάμει πάντων διήνεγκεν, ὅσους ἐγέννησε γῆ. ἦν γὰρ αὐτῷ τὰ μὲν ἄλλα μηρῶν ἀπλετον μέγεθος ἀνδρόμορφον, ὥστε ὑπερέχειν μὲν πάντων τῶν ὀρῶν· ἡ δὲ κεφαλὴ πολλάκις τῶν ἄστρων ἔψαυε· χεῖρας δὲ εἶχε, τὴν μὲν ὑπὲρ τῆς ἑσπέρας ἐκτεινομένην, τὴν δὲ ὑπὲρ τὰς ἀνατολάς. Ἐκ τούτων δὲ ἑξῆκοντα ἑκατὸν κεφαλαὶ δρακόντων, τὰ δὲ ἀπὸ μηρῶν, ἀσπίδας εἶχεν ὑπερμεγέθεις ἐχιδνῶν ὧν ὅλοι σὺν αὐτῷ ἐκτεινόμενοι κορυφὴν συριγμὸν πολὺν ἐξίεσαν. Πᾶν δὲ αὐτοῦ τὸ σῶμα κατεπτέρωτο· Αὐχμηραὶ δὲ ἐκ κεφαλῆς καὶ γενείων βίαιες ἐξωσμοῦντο. Πῦρ δὲ ἐδέρκετο πᾶσι ὄμμασι. Τοιοῦτος ὢν ὁ Τυφὼν καὶ πλικοῦτος, ἡμιμιᾶς βάλλων πέτρας ἐπ' αὐτὸν ἤρανον, μὴ συριγμὸν ὁμοῦ

there

there is ſome uncommon Relation between them. Particularly the Account which is given of *Typhon*'s Death in prophane Authors, makes it probable, not only that he periſh'd in the Deluge, but alſo that the Deluge it ſelf aroſe from the Approach of a Comet, that is, from ſuch a Cauſe as would neceſſarily produce the ſame Effects in the Earth, which we ſhall ſhew were produc'd at the Deluge by the Comet: For 'tis ſaid by ſome, that *Typhon*, or *Typhoëus*, lies ſubmerſed in Water; and by (*c*) others, that he was overwhelm'd with Mountains, *Volcano's*, or large Quantities of Earth. (*d*) *Pindar* ſays, all *Sicily* lies upon him: And (*e*) *Ovid* Vide Not. (*f*) pag. 174. prius.

χὴ βοῆς ἐρέρεπ· Πολλὴ δ' ἐν τῇ σόματι πυρὸς ἀΐθαλος ζάλη. Vide etiam Val. Flacc. Argon. lib. 4. verſ. 236, 237. Et Plutarch. de Iſide & Oſiride paſſim.

(*c*) *Virgil. Æn.* ix. *verſ.* 115, 716.

Tum ſonitu Prochyta alta tremit, durumq; cubile
Inarime, Jovis imperiis impoſita Typhœo.

Et Lucan. v. *verſ.* 200, 201. *Et Ovid. Faſt.* iv. *verſ.* 491, 492.

Alta jacet vaſti ſuper ora Typhoëos Ætne,
Cujus anhelatis ignibus ardet humus.

Et Schol. Pindari in Pyth. i. verſ. 33. &c. Σταπάζει χὴ ἤ φασὶ τῆ Τυφῶνος ἱστορία. Οἱ μὲ γὰ αὐτὸν ὄρει τ' Βοιωτίᾳ ὑπερκεῖσθαι ἔφασαν, χὴ ὡς εἰσὶν αὐτῷ πυρὸς ἀναδόσεις· οἱ δ' ἐν Φρυγίᾳ· ἕτεροι δ' ἐν Λυδίᾳ· Ἀρτέμων δέ τις ἱστορικὸς, πλανώτερον λογοποιεῖ. καθάπαξ γάρ φησι πᾶν ὄρος ἔχον πυρὸς ἀναδόσεις, ὅτι Τυφῶνι κεῖται.

(*d*) Pindar. Pyth. i. verſ. 29, &c. Ὅς τ' ἐν αἰνᾷ Ταρτάρῳ κεῖται, θεῶν πολέμιος, Τυφὼς ἑκατοντακάρανος. ἦ ποτὲ Κιλίκιον θρέψεν πολυώνυμον ἄντρον· νῦν γὰ μαὶ ται θ' ὑπὲρ Κύμας ἁλιέρκεες ὄχθαι, Σικελίᾳ τ' ἀμφὶ πίλωμα στέρνα λαχόντα· χίων δ' ὀρανίᾳ σιωέχῃ, νιφόεσσ' Αἴτνα, &c.

(*e*) *Ovid. Metamorph.* V. *verſ.* 346, &c.

Vaſta Giganteis ingeſta eſt inſula membris
Trinacris, & magnis ſubjectum molibus urget
Æthereas auſum ſperare Typhoëa ſedes.
Nititur ille quidem, pugnatq; reſurgere ſæpe:
Dextra ſed Auſonio manus eſt extenſa Peloro;
Lævo, Pachine, tibi; Lilybæo crura premuntur;
Degravat Ætna caput, ſub qua reſupinus, arenas
Ejectat; flammamq; fero vomit ore Typhoëus.

fol-

follows him in aſſerting the ſame Thing: And laſtly, *Valerius Flaccus* (*f*) more accurately ſays, he was firſt overwhelm'd with Waters, and then with Earth. Now as the Tradition of *Typhon*'s being ſubmers'd in Water, ſeems evidently to proceed from his periſhing in the Deluge; ſo upon Suppoſition that the Deluge aroſe from a Comet, 'tis equally obvious why he is ſaid to be overwhelmed with Earth, when we conſider that the Diluvian Matter from the Comet's Atmoſphere contained in it a great Quantity of earthy and ſtony Particles, which made a Sediment upon the Face of the *Antediluvian* Earth, and buried all the Old World under it; as we ſhall ſhew hereafter. (2.) Likewiſe in that ancient and remarkable Tradition in *Plato*, concerning the Primitive State of the World, and the Change made at the Fall, there is not only a bare Notice taken of a great *Cataſtrophe* which happen'd ſome conſiderable Time afterwards, and brought the World into very great Danger, namely, the Deluge; but alſo 'tis plainly intimated, that it was brought about by the ſame Sort of Cauſe, as that from which the Earth it ſelf was originally formed, *viz.* in our *Hypotheſis*, the Atmoſphere of a Comet, and that this ſame Cauſe made the

---

Oppidaque, & magnos evolvere corpore montes.
Inde tremit tellus, &c.

(*f*) *Valer. Flacc. Argon.* ii. *verſ.* 23, *&c.*

——————Scopulis ſed maximus illis
Horror abeſt, Sicula preſſus tellure Typhoëus.
Hunc profugum, & ſacras revomentem pectore flammas
Ut memorant, prenſum ipſe comis Neptunus in alto
Abſtulit, implicuitque vadis; totienſque cruenta
Mole reſurgentem, torquentemque ignibus undas,
Sicanium dedit uſque fretum; cumq; urbibus Ætnam
Intulit, ora premens: trux ille, ejectat adeſi
Fundamenta jugi; pariter tunc omnis anhelat

Earth

Earth move *ſlower* than it did before: Which is *really* true of its *diurnal*, and *apparently* ſo of its *annual* Motion; ſince 29½ *Poſtdiluvian* Days contain as much abſolute Time as 30 *Antediluvian* ones; and ſince the Tropical Year, which was then but 360 Days, is now above 365, as will appear preſently. All which, and ſeveral other *Phænomena* of the Deluge, will beſt be ſeen in the Paſſage it ſelf, which here follows: (g) *For ſome conſiderable Time after this, the Tumult, Perturbation and Earthquakes* [cauſed by the Shock which was then given to the Earth, and by its Commencing a contrary Motion to what it had before] *having ceaſed, and a Calm ſucceeding, the World went on in its ſettled Courſe;——but at laſt, more remiſsly,* [or more ſlowly.] *The Cauſe of this was that material Part of its Conſtitution, which anciently belong'd to it:* [Here the Cauſe of the Earth's Retardation is aſſign'd to ſuch Matter as belong'd to it of old, before its Formation, that is, to the Atmoſphere of a Comet; which is farther con-

---

Trinacria, injectam feſſo dum pectore molem
Commovet experiens, gemituq; reponit inani.

(g) Platonis Politic. Operum, p. 176. D, &c. Μετὰ ϑ ταῦτα, σχολὴν ἱκανὴν χρόνε, ϑορύβε τε κ) ταραχῆς ἤδη παυόμενε κ) τῶν σεισμῶν, γαλήνης ἀπολαβόμενε, εἰς τε τ εἰωϑότα δρόμον τ ἑαυτῆ κατακοσμήσαντ ἦει,——τελευτῆ ϑ ἀμελέτερον. Τούτων ϑ αὖπῶ τὸ σωματοειδὲς τ συγκράσεως αὖπον, τὸ τ πάλαι ποτὲ φύσεως ξυμφορον, ὅτι πολλῆς ἦν μέτοχον ἀταξίας, πρὶν εἰς τ νῦν κόσμον ἀφικέσθ. Παρὰ μὲ γὰ τὸν συνδέντ, πάντα καλὰ κέκτη· πλεῖα ϑ τ ἔμπροσθεν ἐξεως ἅπα χαλεπὰ κ) ἄδικα ἐν ἕρανῷ γίνε), ταῦτα ἐξ ἐκείνης αὐτός τε ἔχει κ) τοῖς ζώοις ἐναπεργάζε)·—— Διὸ δὴ κ) τότ' ἤδη Θεὸς ὁ κοσμήσας αὐτὸν, καθορῶν ἐν ἀπορίαις ὄντα, κηδόμενο ἵνα μὴ χαμαθεὶς, ὑπὸ ταραχῆς διαλυθεὶς, εἰς τ τ ἀνομοιότητ ἄπειρον ὄντα τόπον δύη, πάλιν ἐφεδρ ἀυπῶ τῷ πηδαλίων γίνομένο, τὰ νοσήσαντα κ) λυθέντα ἐν τῇ καϑ' αὐτὸν περοτέρᾳ περιόδῳ τρέψας, κοσμεῖ τε, κ) ἐπανορθῶν, ἀθάνατον αὐτὸν κ) ἀγήρω ἀπεργάζη).

firm'd

firm'd from what follows:] *For this Matter was in great Confuſion, before it was form'd into the preſent World. For all the Good and Regularity there is in the World, proceeds from him that formed it; but all the Evils and Irregularities, in its ſelf or its Animals,* [ſuch a Sort of Matter as belong'd to] *its former Conſtitution.* [Here all the Inconveniencies and Irregularities of the Earth, in its *Poſtdiluvian* State, are juſtly attributed to this Chaotick Matter, deriv'd from the Comet's Atmoſphere at the Deluge.]——*Wherefore God, who firſt formed the World, being ſollicitous leſt it ſhould periſh by fluctuating in this Storm, and ſhould be diſſolv'd and paſs away into the infinite Spaces of Diſſimilitude; He therefore ſat again at the Helm, reſtored its diſeaſed and disjointed Parts to their ancient Order and Place, and put it above the Reach of Death or Decay.* This whole Paſſage is ſo ſignal an Atteſtation to the preſent *Hypotheſis*, and to the *Phænomena* of the Deluge depending thereon, as not to want any other Comment than the preſent Account of the Deluge.

Gen. viii. 21, 22. & ix. 8,--17.

The *third* and laſt poſſible way of proving the Truth of the preſent *Hypotheſis*, is the Being of ſuch plain and ſenſible Effects, as muſt be undoubted Conſequents of ſuch an Aſſertion, and without the Suppoſal thereof were perfectly unaccountable; which is the very Method of Probation I ſhall here uſe, and do very much depend upon. There are ſeveral Degrees of Evidence, and Kinds of Proofs, very different from thoſe made uſe of in the Mathematicks; which yet are little leſs ſatisfactory to the Minds of wiſe Men, and leave little more Room for doubting than they. Several Sorts of Propoſitions muſt be evinced by ſeveral Sorts of Arguments; and whatever poſſible and eaſy Aſſertion has

has all the Proofs which its Nature requires, or could juſtly be expected upon Suppoſal of its real Exiſtence, ought to be admitted for true and evident. Thus in that Sort of Things we are now upon; if a certain real Cauſe be aſſign'd, which being ſuppos'd, would neceſſarily infer ſeveral plain and viſible Effects, and occaſion ſeveral ſenſible *Phænomena*; 'tis plain, if thoſe Effects and *Phænomena* be upon Examination found to be correſpondent, and as they muſt and would be on the real Being of ſuch a Cauſe, the Exiſtence of that Cauſe is prov'd. And as where the Effects are few, ordinary, otherwiſe accountable and incapable of Reduction to Calculation, or Accuracy of Correſpondence in the juſt Quantity and Proportion neceſſary; the Proof is weak, and only probable; and as where ſeveral of the Conſequents of that Cauſe agree well enough, yet ſome others diſagree, the Diſagreement of one or two, is a ſtronger Objection againſt, than the Coincidence of the reſt an Evidence for the ſame, and the Proof none at all: So on the other ſide, where a Cauſe is aſſigned, whoſe certain conſequent Effects muſt be very many, very ſurprizing, otherwiſe unaccountable, correſpondent on the greateſt Niceneſs of Calculation in the particular Quantity and Proportion of every Effect, and where withal no diſagreeing *Phænomenon* can be urg'd to the contrary; the Evidence hence deriv'd of the Reality of the aſſign'd Cauſe, tho' of a different Nature, and, if you will, Degree too, from Demonſtration, is yet little leſs ſatisfactory to the Minds of wiſe and conſidering Men, than what is eſteem'd more ſtrictly ſo. Thus, for inſtance, Aſtronomers at this Day find little more Inclination or Reaſon to doubt of the Annual and Diurnal Motions of the Earth, than

of any ſtrictly demonſtrated Propoſition; and as much, in a manner, take it for granted in all their Reaſonings, as they do the Propoſitions in *Euclid*, tho' the Evidence for the ſame be in its Kind different from, and inferior to the other. And thus, as I have before obſerv'd, Sir *Iſaac Newton* has given ſufficient Evidence of the Univerſal Law of *Mutual Attraction*, and *Gravitation* of Bodies; which accordingly there is no more Occaſion to doubt of, than of thoſe common Matters of Fact or Hiſtory, of which no wiſe Man ever made any queſtion. And thus it is that I hope to evince the Truth and Reality of that Cauſe aſſign'd in this Propoſition, *viz.* by proving that thoſe viſible Effects or *Phænomena* relating to the Univerſal Deluge, which are very many, very ſurprizing, hitherto unaccountable, ſeveral of which are capable of Calculation as to the particular Time, Quantity, and Proportion of the reſpective Particulars, are every one ſo, and no otherwiſe, as on Suppoſal of the aſſign'd Cauſe they either certainly muſt, or at leaſt probably would have been. And as upon a Demonſtration of the Diſagreement of any one *Phænomenon*, which were a neceſſary Conſequence of the ſame, I muſt own the Falſeneſs of the Propoſition before us; ſo I hope, if the Univerſality of Correſpondence, even to the Exactneſs of Calculation in proper Caſes be eſtabliſh'd, and no contradictory Inſtance can be produc'd; it will be allow'd, that I have ſufficiently evinced the *Reality*, and, in a proper Senſe, *Certainty* of the ſame Aſſertion. This then being premis'd, 'tis plain, that every one of the particular *Phænomena* of the Deluge afterward accounted for, is a proper Argument of this Propoſition, and might juſtly claim a Place here on that Account.

But

But becauſe ſuch an Enumeration of them beforehand would prevent their own more peculiar Place hereafter, and diſturb the propos'd Method of the enſuing Theory, I ſhall leave them to their proper Places; tho' with this Premonition, That ſeveral of them do ſingly ſo exactly fit the otherwiſe unaccountable *Phænomena* of Nature, and of the Deluge, and determine the Time and Circumſtances of the latter ſo nicely, that their ſeparate Evidence is very conſiderable; and when taken conjointly with the reſt, as ſatisfactory as I think the Nature of the Thing is capable of. But beſides theſe particular correſpondent *Phænomena* of the Deluge, and after the Diſcovery of the moſt of them, I found Proofs of ſomewhat another Nature; which not only confirm'd all that I had before obſerv'd, but enabled me to determine the Time when the Flood began, to the greateſt Exactneſs poſſible; which therefore I ſhall alone produce here, reſerving thoſe other for their own Places hereafter. Now, on the *Hypotheſis* that a Comet paſs'd by the Earth (till then revolving circularly about the *Sun*) at the Time, and in the Manner aſſign'd by the Propoſition, the neceſſary Effects or Conſequences of it are theſe Six. (1.) The circular Orbit of the Earth would be chang'd into that of an *Ellipſis*; and the *Sun*, which was before in the Center of the Circle, would be afterwards in that *Focus* of the *Ellipſis*, which were neareſt the Place at which the Attraction of the Comet happen'd. (2.) The Year, after ſuch a Paſſing by of the Comet, would be increaſed ten Days, one Hour, twenty eight Minutes and an half. (3.) The Time of the Paſſing by of the Comet, or the Beginning of the Deluge, to be determin'd by the Place of the *Perihelion*, muſt be coincident with that aſſign'd

Hypoth. 7. *prius.*

Lem. 51. *cum Coroll. prius.*

Lem. 58. *cum Coroll. prius.*

Lem. 54.

ſigned in the *Moſaick Hiſtory*. (4.) The very Day of the Comet's Paſſing by, or of the Beginning of the Deluge, to be determin'd from the Aſtronomical Tables of the Conjunctions of the *Sun* and *Moon*, muſt be coincident with the Time determin'd by the ſaid Place of the *Perihelion*, and with the very Day aſſign'd in the *Moſaick* Hiſtory. (5.) The Quantity of Acceleration to be determin'd *à priori*, from the Force of the Comet's Attraction, muſt correſpond with that which the preſent *Elliptick* Orbit does require. I ſay nothing of the Retardation of the Diurnal Rotation of the Earth here by this Matter from the Comet, as I did formerly; becauſe it will appear, from what I have lately diſcover'd relating to Magnetiſm, that the Retardation is owing, in Part, to a Cauſe very remote from our preſent Buſineſs; and that till the other Cauſe can be ſtated, as to its Proportion of the Retardation, we cannot well eſtimate what Proportion thereof belongs to the Stoppage of the Diurnal Motion at the Deluge, by the Quantity of adventitious Matter then gain'd. All which Effects or Conſequents, that they are, *de facto*, true and real, I ſhall now prove.

I. The Orbit of the Earth is now *Elliptical*, and the Sun is in that *Focus* thereof, which was neareſt the Place of the Earth, when the Deluge began. This Propoſition is ſufficiently known to Aſtronomers, as to the former Part of it: And if it be conſider'd, That the Earth when the Deluge began, was at or very near that Degree of the *Ecliptick*, where the *Perihelion* was afterward, as has already appear'd; the latter Part will be equally evident with the former.

II. The

II. The Year, before the Flood, was in abſolute Duration ten Days, or more nicely, ten Days, one Hour, and twenty eight Minutes and an half ſhorter than the preſent; tho' it had juſt 360 *Antediluvian* Days then in it.

In order to the Proof of which, I ſhall ſhew firſt in general, that the *Antediluvian* Year was different from, nay, ſhorter than the preſent Year; and afterwards determine the particular Length thereof more exactly; and ſhall compriſe what Reaſons I have for theſe Aſſertions in the following Arguments.

(1.) The true Length of the Solar Year was ſo long unknown after the Deluge, that there muſt have happen'd ſome mighty Change and Lengthning thereof at the Deluge, or elſe no rational Account can be aſſign'd of ſuch groſs and ſo laſting an Ignorance. 'Tis not to be queſtion'd, but the *Antediluvian* Patriarchs were perfectly acquainted with the *Antediluvian* Year; every one of thoſe mention'd in Scripture having ſeen ſo many Summers and Winters, or natural Solar Years, that himſelf were able to aſcertain their Length, and correct any Miſtake about them. 'Tis alſo not to be doubted, but the *Poſtdiluvians* would have retain'd the ſame Year, and determin'd it by the ſame Number of Days as their Forefathers, had they found it to agree with the Courſe of the Sun and Moon *then*, as it did formerly. But 'tis evident from the ancienteſt Authors, as has been juſt now prov'd, that 'twas many hundreds of Years after the Deluge, e're the moſt Learned Nations rectify'd their Year to the Sun's Courſe, or arriv'd at more than three hundred and ſixty Days in their Accounts. Which Number accor-

Vid. Phænom. 24. infra.

dingly was the Meaſure of the Degrees of the Zodiack, or Ecliptick Circle, and thence of all other Circles among the Aſtronomers; and the Meaſure and Standard of a Year for many Ages; till Aſtronomical Obſervations forc'd Men to correct the ſame.

Now all this, on the preſent *Hypotheſis*, is eaſy and natural; That when the *Antediluvian* Year was juſt 360 Days long, and after the Deluge was inſenſibly become above three hundred and ſixty five Days, without the leaſt Knowledge or Suſpicion of any Change therein; 'tis, I ſay, very eaſy and natural in this Caſe to ſuppoſe, that upon their obſerving, in Length of Time, the Seaſons to be protracted, and return ſtill later every Year than other; (as on the retaining the Antediluvian Year muſt needs happen,) and conſequently their ancient Standard of three hundred and ſixty Days, to be too ſhort for the Sun's Revolution; that they ſhould lengthen their Accounts to three hundred and ſixty five, and at laſt to $365\frac{1}{4}$ Days in the whole Year. And indeed, this moſt ancient Adjuſtment of the Year and Months, with the Degrees of a Circle, and of each Sign in the Ecliptick, was found ſo eaſy, ready, and uſeful on all Accounts, that even when the odd five Days were added afterward, they were not inſerted into the Months, nor perhaps eſteem'd Part of the Year, but look'd upon as Ἡμέραι Ἐπαγόμεναι, *adventitious* or *odd Days*, or *Days ſuperadded* to the old and eſtabliſh'd Year of the World; as being of a quite different Denomination and Character from all the reſt. However, 'tis very agreeable to Reaſon and ancient Hiſtory, that on the Obſervation of the Protraction of the Seaſons, and on the Improvement of Aſtronomy, the Year ſhould be increas'd from three hundred and ſixty

to

to three hundred and ſixty five Days; and afterward, (the Obſervations of the more Learned Aſtronomers enforcing it,) from three hundred ſixty five to $365\frac{1}{4}$, or the *Julian* Year, which with us is retain'd to this very Day. All this is, I think, eaſy and natural in the preſent Caſe, upon that *Hypotheſis* which is here defended; but without it, 'tis very ſtrange and unaccountable. 'Tis, I ſay, very *ſtrange* and *unaccountable*, either that the *Antediluvian* Patriarchs ſhould not know the Length of their own Year; or that none of their Poſterity, but ſuch as were guided in it by Divine Revelation, ſhould retain the ſame afterwards; but be forc'd to make uſe of one that was ſo far from correſponding to thoſe Seaſons, and that Revolution of the Sun, which a Year was on purpoſe deſign'd to be commenſurate to. Which Concluſion is farther confirm'd,

(2.) By the Eſſential Difference of the ancient Years among ſeveral Nations ſince the Deluge: Some of which made uſe of *Solar*, and others of *Lunar* ones, or endeavour'd to adjuſt their Periods to thoſe of each of theſe Luminaries. This Difference of Years is known in Antiquity, has been the Occaſion of great Diſputes, and is not yet a Stranger to the World. Nay, ſo far as I find, ſome of thoſe Nations who agreed with the moſt general Standard of three hundred and ſixty Days, ſuppos'd that Number agreeable in ſome meaſure to the *Lunar*, as well as to the *Solar* Courſe, as conſiſting nearly of 12 Synodical or Monthly Revolutions of the former, as well as of a ſingle Annual one of the latter; and embrac'd it as much, if not more, on the Account of its imagin'd Correſpondence with the *Moon*, as of a like imagin'd Correſpon-

dence with the *Sun*. Now this Eſſential Difference of *Solar* and *Lunar* Years in the eldeſt Antiquity after the Flood, is on no other Grounds ſo accountable, as that the *Antediluvian* Year having been deliver'd down from their Forefathers to have agreed with the Courſes both of the *Sun* and *Moon*, (as on the preſent *Hypotheſis* it really did) ſome Nations followed *one* Branch, and others *another* of the ſame Tradition: And when they no longer were commenſurate, accommodated their Accounts to the one or the other, according as the one or the other was moſt prevalent and univerſal among them. This is an eaſy and rational Account of this Eſſential Difference of *Solar* and *Lunar* Years, ſo variouſly followed by many Nations ſince the Deluge: Which otherwiſe, if the Year was of the ſame Length with the preſent, and fix'd before the Flood, 'tis hard to aſſign the Original of. But if that were, as in this *Hypotheſis*, both a *Solar* and *Lunar* Year, all is very eaſy, and what muſt naturally happen upon an imperceptible Change at the Deluge. Which will be ſtill farther confirm'd, if we conſider,

(3.) That the Moon's other Motions, *Diurnal* and *Menſtrual*, are ſtill ſo accurately adjuſted and commenſurate to each other, that 'tis very probable the *Annual* was alike adjuſted and commenſurate to thoſe in the primitive Conſtitution of Nature. 'Tis certain, the Moon accompanies our Earth, and has her *Annual* Revolution exactly equal to that of the Earth. 'Tis alſo certain, as has been before obſerv'd, that her *Menſtrual* Periodical Revolution about the Earth, is exactly equal to her *Diurnal* about her own *Axis*: Which wonderful and remarkable Coinci-

Lem. 42, *prius.*

dence

dence or Correſpondence of two ſuch entire diſtinct Motions, renders it highly probable, that the third or *Annual* Revolution was not by Providence originally deſign'd to be ſo incommenſurate to thoſe others, as ſince the Deluge it moſt evidently has been; and that to the greateſt Trouble and Perplexity of many Ages, and the entire Diſturbance of the ancient Chronology. Where we cannot but in one Caſe acknowledge the moſt exact Interpoſition of Providence, in the Equality of the *Menſtrual* and *Diurnal* Revolutions; and the notable Effect thereof, the expoſing of almoſt the ſame Hemiſphere of the Moon to the Earth continually; we cannot ſure be unwilling to own a like Interpoſition in the other, in the Commenſurability and Correſpondency of the ſame *Menſtrual* and *Diurnal* Revolutions to the *Annual* one of it ſelf, and of its Companion the Earth: Eſpecially where the Reaſon and Advantage of ſuch an Adjuſtment, (the eaſy and regular Accounts of Time through the World thence ariſing,) is much more plain and evident, than in that other Caſe, of which yet there can be no reaſonable Doubt or Heſitation: Which therefore conſiderably enforces the fore-mention'd *Hypotheſis*; according to which, the wiſe and careful Interpoſition of Providence in the Original Conſtitution of the World, appears to have been as accurately ſollicitous and engag'd in the Adjuſtment of the *Annual* Motion to the *Menſtrual*, as 'tis unqueſtionably true in the like Correſpondence of the *Menſtrual* to the *Diurnal*, ſo worthy the preſent Conſideration and Admiration of Aſtronomers; Which will be moſt of all confirm'd by the exact Agreement of the ſeveral Periods, to be taken notice of in the next Place.

(4.) The Eccentricity of the Sun is ſo exactly coincident with the *Epact* of the Moon; or the Annual Motion in the Circular Orbit before the Deluge, ſo nicely equal to thirteen Periodical, and twelve Synodical Revolutions of the Moon; that 'tis very improbable it ſhould be wholly by Chance, or without any Relation of one to another. The Eccentricities of Planets are various, uncertain, and boundleſs; and 'twill be next to impoſſible, in ſuch Caſes, to obſerve accurate Coincidences, where nothing but Chance is concern'd, and there is no Analogy or Connexion in Nature for 'em. If there were a certain Watchword, out of 500, pitch'd upon among certain Conſpirators, and a Perſon was taken on Suſpicion, and prov'd to have nam'd that very Word to his ſuppoſed Partner; it were in Reaſon, and the Opinion of the World, 499 to one he before knew of it, and did not by Chance only hit upon it. If any Ancient Hiſtorian ſhould aſſert, that a certain remarkable Accident happen'd on ſuch a Day, and ſuch an Hour, of a given Year; and a Way was afterward diſcover'd of determining the Time on which, if it really did happen, it muſt have done ſo; tho' the Authority of the Author were not conſiderable otherwiſe, no doubt would be any more made of his Veracity in that Point, if the Coincidence was ſo exact as to determine the ſame Hour mention'd by the Hiſtory. Thus if on other Intimations it be conjectur'd, that the Earth mov'd circularly before the Deluge, and the Year was both a Solar and Lunar one; and if afterward the Eccentricity of the Earth's Orbit, and the Lunar Epact, or Difference between the Solar and Lunar Year, be reduc'd to Calculation, and found accurately coincident, when

when the Eccentricity of no other of the Planetary Orbits, is at all ſo; There is, I think, very great Reaſon to believe that Coincidence to be founded in Nature, and that the Alteration of the Year, juſt ſo much as thoſe agreeing Quantities require, was the true Occaſion thereof. The mean Eccentricity requiſite to correſpond to the Lunar *Epact*, muſt be about $\frac{18}{1000}$ of the entire Middle Diſtance: That of *Saturn* is $\frac{55}{1000}$, that of *Jupiter* $\frac{48}{1000}$, that of *Mars* $\frac{93}{1000}$, that of *Venus* $\frac{7}{1000}$, that of *Mercury* $\frac{210}{1000}$, that of the *Moon* $\frac{55}{1000}$; which all widely differ from the Quantity here neceſſary. But when we conſider the Eccentricity of the *Magnus Orbis*, or Orbit of the Earth's and Moon's Annual Courſe, it exactly accords, and is about $\frac{18}{1000}$ of the entire Middle Diſtance; as we have before particularly obſerv'd, and as the Moon's Epact moſt nicely requires. 'Tis, I confeſs, not *impoſſible* that Calculations and Numbers, in which there is all imaginable Room for Diverſity under or over, *may* be coincident, without any natural Dependance or Analogy one to another. 'Tis *poſſible*, that I may ſeveral times by Gueſs, or at a Venture, hit upon any Number which another Perſon has in his Mind. 'Tis *poſſible*, a Gameſter may, without any foul dealing, throw all Sizes or Aces, be the Dice never ſo many, a hundred times together. Theſe Things, it muſt be own'd, are *poſſible*; and ſo no Compact or Colluſion can be *demonſtrated* by ſuch Coincidence; neither, conſequently, do I pretend that this, or any of the like Coincidences in the preſent Theory, do abſolutely *demonſtrate* that Aſſertion they are brought to prove. But as in the former Caſes, the Obſervation of the mention'd Coincidences would afford Evidence fully *ſatisfactory* of ſome Myſtery, Cun-

Lem. 58. *cum Coroll. prius.*

ning, or Artifice us'd therein; ſo I think it ought to be in the preſent Caſe: I mean, where all Things elſe are rightly correſpondent, and no contradictory Inſtances to be alledg'd, the nice and accurate Coincidences of Calculations in this, and the other proper Caſes through the preſent Theory, ought to ſatisfy the Minds of conſidering Men, of the real Truth and Evidence of the Propoſition on which they all depend, and from which they are deriv'd; and particularly, that the Lunar *Epact*, and *Sun*'s *Eccentricity*, which are ſo nicely equal to each other, muſt have a natural Relation and a common Occaſion, *viz.* the Alteration of the Year at the Deluge.

III. The Time of the Paſſing by of the Comet, or of the Beginning of the Flood, determin'd by the Place of the *Perihelion*, is agreeable to that mention'd in the *Moſaick* Hiſtory. 'Tis certain, that the Place of the *Perihelion* of the Earth's Orbit, from Mr. *Flamſteed*'s lateſt Obſervations, is now in the latter End of the 8th Degree of *Cancer*; and tho' by Mr. *Flamſteed*'s Table of its Motion, it go forward in 4070 Years above 56 Degrees, yet that Number being a few Degrees more than either Mr. *Street*'s or *Tycho*'s Tables, or indeed than Sir *Iſaac Newton*'s Calculation *à priori* corrected, does allow; we may take 50 Degrees, or thereabouts, being *Tycho*'s Number, and near enough to the other Calculations alſo; and then we ſhall find, that the *Perihelion* of the Earth's Orbit, or the Point B in the Figure, was at the Deluge from the preſent *Hebrew* Chronology, on or about the 17th Degree of *Taurus*, anſwering to the 17th Day of the ſecond Month from the Autumnal Equinox, or the Beginning of the ancient Year: On which very Day, by the

Fig. 3.

ex-

expreſs Teſtimony of the Sacred Hiſtorian (agreeing within a Day or two with the corrected Teſtimonies of (*h*) *Beroſus* and (*i*) *Abydenus*, and to a ſingle Day with the expreſs Teſtimony of (*k*) *Plutarch*) the Deluge began. Which Exactneſs of Coincidence I look upon as not a little remarkable. Gen. vii. 11.

And *Note*, That as one or two Coincidences under a former Head, are ſomewhat exacter to the preſent Tables of Aſtronomy in the preſent *Hebrew*, than in the other exacter Chronology; ſo does the Coincidence before us agree better with the exacter Chronology than with the preſent *Hebrew*, as allowing 52 Degrees to the Preceſſion of the Equinox, while the *Hebrew* allows but 46.

IV. The *very Day* of the Comet's Paſſing by, or of the Beginning of the Deluge, determin'd from the Aſtronomical Tables of the Conjunctions of the *Sun* and *Moon*, is exactly coincident with that before *nearly* determin'd by the Place of the *Perihelion*, and *exactly* by the *Moſaick* Hiſtory. It has been before prov'd, that ſeeing the *Moon* ſtill accompanies the Earth, it muſt needs

---

(*h*) Ἐπὶ Ξισύθρου μέγαν κατακλυσμὸν γενέσθαι· ἀναγράφεται δ' ὁ τοῦτον λόγος ὧδε. Τὸν Κρόνον αὐτῷ Ζεὺς ὕπνον ἐπιστάντα φάναι, μηνὸς Δεσίου ιέ. τοὺς ἀνθρώπους ὑπὸ κατακλυσμοῦ φθαρήσεσθαι, &c. Beroſus apud Syncel. pag. 30.

(*i*) Σισίθρου δὲ Κρόνου προσημαίνει ἔσεσθαι πλῆθος ὄμβρων Δεσίου ιέ. Abydenus apud Euſeb. Chron. lib. 1. p. 8.

(*k*) Ταῦτα δ' προαχθῆναι λέγουσι [de ingreſſu Oſiridis in Arcam loquitur] ἑβδόμῃ φησὶ δέκα μησὶ Ἄθυρ, ἐν ᾧ τὸν Σκορπίον ὁ ἥλιος διέξεισι, ὀγδοὸν ἔτος καὶ εἰκοστὸν ἐκείνου βασιλεύοντος Ὀσίριδος. Plutarch. de Iſide & Oſiride, p. 356.

Ἑβδόμῃ φησὶ δεκὰ τοῦ Ὀσίριδος γενέσθαι τελευτὴν Αἰγύπτιοι μυθολογοῦσι. —— διὸ καὶ τὴν ἡμέραν ταύτην ἀνοδίαστον οἱ Πυθαγόρειοι καλοῦσιν, καὶ ὅλως τὸν ἀριθμὸν τοῦτον ἀφοσιοῦνται. p. 367.

have

have been about three Days, or three Days and a half pafs'd the New or Full, at the Paſſing by of the Comet. It has alſo been before prov'd, that the Flood began either in the Year of the *Julian* Period 2365, and the 2349th before the Chriſtian *Æra*, according to the preſent *Hebrew* Chronology; or in the Year of the *Julian* Period 1788, and the 2926th before the Chriſtian *Æra*, according to the other more exact Chronology. Now it appears by the Aſtronomical Tables of the Conjunctions of the *Sun* and *Moon*, that the New Moon happen'd at the Meridian of *Pekin* in *China*, whereabout probably *Noah* liv'd immediately before the Deluge, or about two-a-Clock on *November* the 25th (in the *Julian* Year) in the Morning: And ſo, at about two-a-Clock on *November* the 28th in the Afternoon, 'twas about 3 Days and a half after the New. Which being the 17th Day of the Second Month from the Autumnal Equinox, is the very ſame pitch'd upon from the Place of the *Perihelion*, and expreſly mention'd in the Sacred Hiſtory: And by ſo wonderfully correſponding therewith, gives the higheſt Atteſtation to our *Hypotheſis* that could, for the Completion and Conſummation of the foregoing Evidence, be reaſonably deſir'd. Nor does the other Chronology anſwer much worſe. For it appears by the ſame Aſtronomical Tables, that the Full Moon happen'd, at the ſame Place, in the 1788th Year of the *Julian* Period, or the 2926th before the Chriſtian *Æra*, on *November* 29th about Noon: And ſo on *December* the 2d was three Days paſt the Full; which was then alſo the 17th Day of the Second Month from the Autumnal Equinox, when the Flood began.

Lem. 57. *prius.*

Gen. vii. 11.

V. The

V. The Quantity of Acceleration determin'd *à priori* from the Force of the Comet's Attraction, does very well correſpond with that which the preſent *Elliptick* Orbit does require. Upon Calculation according to the *Lemma* quoted in the Margin, the Velocity acquir'd by the Earth on its firſt Change, from a Circular to an *Elliptick* Orbit, appears to have been about $\frac{488}{48993}$ of the entire Velocity; or ſuch as would carry it in $52\frac{1}{2}$ Minutes about 468 Miles. 'Tis alſo upon Calculation evident, from what has been already obſerv'd, that in caſe the Comet's neareſt Diſtance were a 24th Part of the Moon's, or 10000 Miles, and it ſelf a little leſs than a Quarter of the Bigneſs of the Earth, or about 6 times ſo big as the Moon; (two very probable and eaſy *Hypotheſes*;) the Time of the Comet's Attraction to be ſolely conſider'd is about 35 Minutes, and the Quantity of Velocity therein produc'd, is the requiſite Quantity $\frac{468}{48993}$ of the entite Velocity, or ſo much as carries a Body 468 Miles in the fore-mention'd Space of $52\frac{1}{2}$ Minutes. And in caſe the Comet's neareſt Diſtance were more or leſs, if the Comet withal be ſuppoſed in the ſame Proportion greater or leſs alſo; the Effect will be the ſame, and the fore-mention'd Velocity equal to what the former Calculation aſſign'd, and the *Elliptick* Orbit of the Earth does exactly require. Which Accuracy of Correſpondence, in the due Quantity of Velocity, added to the former Arguments, cannot but be eſteem'd a mighty Evidence for the Reality of our *Hypotheſis*: All whoſe Conſequents are ſo ſurprizingly true, and ſo fully bear witneſs to one another.

Lem. 27. *prius.*

Lem. 55. *cum Coroll. prius.*

VI. The

VI. The Quantity of new or foreign Matter, deriv'd from the Comet upon our Earth, muſt be ſufficient to retard the Earth's diurnal Motion in the Proportion of the Lunar Year of 355 Days, 4 Hours, and about 20 Minutes, to the *Antediluvian* one of 360 Days. For ſeeing the *Antediluvian* Years were juſt 360 *Antediluvian* Days, and yet equal to only 355 Days, 4 Hours, and about 20 Minutes of our preſent Days, it is plain, that the additional Waters and Matter, deriv'd from the Comet's Atmoſphere and Tail at the Deluge, muſt have retarded the Earth's diurnal Motion, and ſo lengthen'd the Day in that Proportion: Which that on an exact Computation it would do, I am now to prove. The Comet, by our preſent *Hypotheſis*, was a little more than a third Part ſo big as our Earth, or about 6 times as big as the Moon, and came 24 times as near as the Moon; whence the Tide cauſed by it, would, if the Earth were wholly fluid, and the Comet had been all the while at the neareſt Diſtance, be equal to $24\times24\times24\times6=82944$ times as great as that of the Moon with us; which being about 6 Feet above the mean Elevation; this Tide or Elevation of the longeſt *Semidiameter* above the mean, would be 497664 Feet, or near 100 *Engliſh* ſtatute Miles, *i. e.* about the 40th Part of the whole *Semidiameter*. But becauſe the Comet did not ſtay long enough at the neareſt Diſtance to have its entire Effect, neither would the upper Cruſt of Earth yield ſo eaſily as a Fluid, nor indeed would the utmoſt Elevation continue at all, but be gradually ſinking towards its old Poſition again; on theſe Conſiderations, we need ſcarcely allow ſo much as one half of this Elevation at the Time when the Waters

ters lay upon the Face of the Earth; Suppoſe about 47 Miles, which in this *Hypotheſis* is the Elevation of the *Baſis* of the *Gordyean* Mountains themſelves, and ſuppoſe about 3 for the proper Height of the higheſt of thoſe Mountains, namely that whereon the Ark reſted; ſo that the Waters might cover the Earth in general about 50 Miles deep one Place with another. I do not mean, that ever they did really at once cover it all ſo deep together, but that if all which came from the Comet had been kept from running into the open Fiſſures, as they fell and diſpers'd themſelves, and if they had been together on the Earth after it was return'd almoſt to its Spherical Figure again, it would have made an Addition every way of 50 Miles. Now this Addition of Water would retard the Earth's diurnal Motion in a ſeſquialteral Proportion of its Quantity of Matter compar'd with that of the whole Earth, as we have formerly prov'd, *i. e.* in caſe Water were as denſe as the whole Maſs of Earth, one Part with another, in a ſeſquialteral Proportion of the Cube of 4050 to the Cube of 4000, *i. e.* in the Proportion of 360 to about 340. This would be the Proportion, I ſay, in caſe the Denſity of the whole Earth were no greater than that of Water. But becauſe the Denſity is certainly ſomewhat more than four times the Denſity of Water, as we have formerly obſerv'd; this Proportion will be reduc'd ſomewhere nearer than that of 360 to 355, which is the very Proportion of Retardation which we ſeek for, and which was to be accounted for in this Place. I mean all this, without the Allowance for that Alteration of the Length of the Day, which has ariſen from the Inequality of the Influence of the Central Loadſtone upon the diurnal Motion of

the Earth in the ſeveral paſt Ages; of which at large, in my *Diſcovery of the Longitude by the Dipping-Needle*, which would require a ſomewhat leſſer Alteration of that Motion of the Deluge by the Cauſe here aſſign'd: But becauſe I want ſufficient *Data*, to determine the Quantity of the Difference at the Deluge, I let this Calculation ſtand as before.

Coroll. 1. *Since the Number* 360 *is not only almoſt a middle Proportional between the Days in the Solar and Lunar Year; is not only the Number of Degrees in the Ecliptick, and in every Circle or Orbit; but was the juſt Number of Days in a Year every where before the Flood, and after it alſo among ſo many Nations, for ſo many Ages, as we have ſeen; The Reaſon of that Prophetick Stile, in which a* Day, *or* Year *thereby meant, does ſignify* 360 *Days, and no more, is evident. What Difficulties the Want of this Obſervation, that* Daniel's Prophetick Year *conſiſted of* 360 *Days, has left unſolv'd, and what Light may be afforded to ſome Places of the higheſt Importance thereby; I had rather the* Reader *ſhould be left to his own Obſervations, and my Lord Biſhop of* Worceſter's *Explication of* Daniel's 70 *Weeks, publiſh'd in Mr.* Marſhal's *Tables of Chronology, than prepoſſeſs him with any more particular Inſtances thereof in this Place.*

Coroll. 2. *Since the very Day of the Beginning of the Deluge,* nearly *determin'd by the Place of the* Perihelion, *and* exactly *by the Aſtronomical Tables of the Conjunctions of the* Sun *and* Moon, *is the very ſame individual Day with that mention'd by the Sacred Writer, and by* Plutarch *alſo; I mean, the* 17*th Day of the Second Month from the Autumnal Equi-*

Equinox; hence ariſes a very ſurprizing and unexpected Confirmation of the Verity of the Scripture-Hiſtory. Here is a great and ſignal Inſtance of the wonderful Providence of God indeed, and of his Care for the Credit and Eſtabliſhment of the Holy Books; that he has left us Means ſufficient, after above 4000 *Years, of examining and aſcertaining the Veracity of the moſt Ancient of its Writers, and in one of the moſt ſcrupled and exceptionable Points of his Narration, that of the Univerſal Deluge; and that from unexceptionable Principles, the Aſtronomical Tables of the Celeſtial Motions. To how great a Degree this Thing will deſerve the moſt ſerious Conſideration of every one, eſpecially in this our Sceptical Age, I need not determine. The Importance of the Concern, and the Greatneſs of the Evidence hence afforded, ſufficiently enforcing this Point, without any farther Application.*

Coroll. 3. *Hence the* Chronology *of the Bible is eſtabliſh'd, and all the pretended immenſe Numbers of Years, which ſome Nations recount, are confuted. For as, the Year of the Deluge from the Sacred Chronology being given, the Day of the Beginning of the Deluge therein aſſign'd is fully atteſted to, and determin'd on our* Hypotheſis, *from Aſtronomy; ſo,* vice verſa, *the Day of the Beginning of the Deluge from the ſame Sacred Hiſtory being given, (and within a Day or two confirm'd from* Plutarch) *the Number of Years thereby aſſign'd is, at the ſame Time, within ſome Latitude eſtabliſh'd alſo. The Methods before-mention'd of fixing that Day, not permitting the Addition or Subſtraction of very many Hundreds, much leſs of many Thouſands of Years, to or from thoſe which the Holy Scripture requires us to account ſince that Time: Which therefore ought to be fully acquieſc'd in; and all other wild and extravagant Numbers be utterly rejected.*

Scho-

Scholium. Having thus eſtabliſh'd this main Propoſition, 'twill here be proper to deſcribe the particular *Trajectory* of the Comet, or that Part of it which was concern'd with us, and our lower Planetary Regions; which being the very *Trajectory* of the famous Comet delineated by Sir *Iſaac Newton*, (which Comet I my ſelf ſaw when I was young;) I ſhall here make uſe of. And becauſe verbal Deſcriptions in ſuch Caſes are of ſmall Advantage, compar'd to Schemes and Graphical Delineations; I ſhall wave more Words about it, and draw an entire Figure of the ſame from Sir *Iſaac Newton*'s Original, for the View and Conſideration of the *Reader*.

Fig. 1.

Scholium. If it be expected that I give an Account of the Eccentricity of the *Moon*'s Orbit about the Earth, as well as of the Earth's about the Sun from this Account of the Deluge; The Reader is to know, that I rather ſuppoſe that Eccentricity to have been occaſion'd at the Commencement of the Diurnal Rotation, than at the Deluge.

BOOK

BOOK III.

PHÆNOMENA.

CHAP. I.

Phænomena *relating to the* Moſaick *Creation, and the Original Conſtitution of the Earth.*

I. ALL thoſe particular ſmall Bodies of which our habitable Earth is now compos'd, were originally in a mixed, confuſed, fluid, and uncertain Condition; without any Order or Regularity. It was an *Earth without Form, and void*; had *darkneſs* ſpread over *the face of its Abyſs*; and in reality was, what it has been ever ſtil'd, a perfect *Chaos*. Gen. i. 2. Grot. Ver. Rel. Chriſt. l. 1. Sect. 16. Burn. Theor. l. 1. c. 4. *and* l. 2. c. 7, 8. Arch. l. 2. c. 1.

The Teſtimonies for this are ſo numerous, and the Conſent of all Authors, Sacred and Prophane, ſo unanimous, that I need only refer the *Reader* to them for the undoubted Atteſtation of it.

II. The Formation of this Earth, or the Change of that *Chaos* into an habitable World, was not a mere Reſult from any ne-

ceſſary Laws of *Mechaniſm* independently on the Divine Power; but was the proper Effect of the Influence and Interpoſition, and all along under the peculiar Care and Providence of God.

The Teſtimonies for this are ſo numerous, and ſo expreſs, both in the *Moſaick* Hiſtory it ſelf, in the other Parts of Scripture relating thereto, and in all Antiquity, that I may refer the *Reader* to almoſt every Place where this Matter is ſpoken of, without quoting here any Particulars. He who is at all acquainted with the Primitive Hiſtories of this riſing World, whether Sacred or Prophane, can have no Reaſon to make any doubt of it.

III. The Days of the Creation, and that of Reſt, had their Beginning in the Evening.

Gen. i. 5, 8, 13, 19, 23, 31. *The Evening and the Morning were the firſt Day.* And ſo of the reſt afterward. (*a*)

IV. At the Time immediately preceding the Six Days Creation, the Face of the *Abyſs*, or *ſuperior* Regions of the *Chaos*, were involv'd in a thick Darkneſs.

Gen. i. 2. *Darkneſs was upon the face of the Deep.* To which Teſtimony, the Prophane Traditions do fully agree; as may be ſeen in the Authors before referr'd to.

V. The viſible Part of the firſt Day's Work, was the Production of Light, or its ſucceſſive Appearance to all the Parts of the

---

(*a*) Thales πρὸς τὸ πυθόμενον, τὸ πρότερον ἐγένετο, νὺξ ἢ ἡμέρα· Ἡ νὺξ ἔφη, μιᾷ ἡμέρᾳ πρότερον. Diogen. Laert. l. 1. Segm. 36.

Earth;

Earth; with the conſequent Diſtinction of Darkneſs and Light, Night and Day upon the Face of it.

God ſaid, Let there be Light; and there was Light: And God ſaw the Light, that it was good; and God divided the Light from the Darkneſs: And God called the Light, Day, and the Darkneſs he called Night: And the Evening and the Morning were the firſt day. Gen. i. 3, 4, 5.

VI. The viſible Part of the Second Day's Work was the Elevation of the Air, with all its contained Vapours; the ſpreading it for an *Expanſion* above the Earth; and the Diſtinction thence ariſing of *Superior* and *Inferior* Waters: The former conſiſting of thoſe Vapours, rais'd and ſuſtain'd by the Air; the latter of ſuch as either were encloſed in the Pores, Interſtices and Bowels of the Earth, or lay upon the Surface thereof.

God ſaid, Let there be a firmament, or Expanſum, *in the midſt of the waters, and let it divide the waters from the waters. And God made the firmament, and divided the waters which were under the firmament, from the waters which were above the firmament: And it was ſo. And God called the firmament Heaven. And the Evening and the Morning were the ſecond day.* Ver. 6, 7, 8.

VII. The viſible Parts of the Third Day's Work were two; the former, the Collection of the *inferior* Waters, or ſuch as were now under the Heaven, into the Seas, with the conſequent Appearance of the dry Land; the latter, the Production of Vegetables

out of that Ground ſo lately become dry.

Ver. 9, 10, 11, 12, 13. *God ſaid, Let the Waters under the Heavens be gathered together unto one place, and let the dry land appear; and it was ſo. And God called the dry land, Earth; and the gathering together of the waters called he Seas: And God ſaw that it was good. And God ſaid, Let the Earth bring forth graſs, the herb yielding ſeed, and the fruit-tree yielding fruit after his kind, whoſe ſeed is in it ſelf upon the Earth; and it was ſo. And the Earth brought forth graſs, and herb yielding ſeed after his kind, and the tree yielding fruit, whoſe ſeed was in it ſelf after his kind; and God ſaw that it was good. And the Evening and the Morning were the third day.*

VIII. The Fourth Day's Work was the placing the Heavenly Bodies, Sun, Moon, and Stars, in the *Expanſum* or Firmament, *i. e.* The rendring them Viſible and Conſpicuous on the Face of the Earth: Together with their ſeveral Aſſignations to their reſpective Offices there.

Ver. 14, 15, 16, 17, 18, 19. *God ſaid, Let there be Lights in the* Expanſum, or, *firmament of Heaven, to divide the day from the night; and let them be for ſigns and for ſeaſons, and for days and years; and let them be for lights in the firmament of Heaven, to give light upon the Earth; and it was ſo. And God made two great lights; the greater light to rule the day, and the leſſer light to rule the night; he made the ſtars alſo. And God ſet them in the firmament of the Heaven, to give light upon the Earth; and to rule over the day, and over the night, and to divide the light from the darkneſs; and God ſaw that it was good. And the Evening and the Morning were the fourth day.*

IX. The

IX. The Fifth Day's Work was the Production of Fiſh and Fowl out of the Waters; with the Benediction beſtow'd on them, in order to their Propagation.

God ſaid, Let the waters bring forth abundantly, the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven. And God created great whales, and every living creature that moveth, which the waters brought forth abundantly after their kind; and every winged fowl after his kind; and God ſaw that it was good. And God bleſſed them, ſaying, Be fruitful and multiply, and fill the waters in the ſeas; and let fowl multiply in the earth. And the Evening and the Morning were the fifth day. Ver. 20, 21, 22, 23.

X. The Sixth Day's Work was the Production of all the Terreſtrial or Dry-land Animals; and that in a different manner. For the Brute Beaſts were produc'd out of the Earth, as the Fiſh and Fowl had been before out of the Waters: But after That, the Body of *Adam* was form'd of the Duſt of the Ground; and by the Breath of Life breath'd into him in a peculiar manner, He became a Living Soul. Some Time after which, on the ſame Day, he was caſt into a deep Sleep, and *Eve* was form'd of a Rib taken from his Side. Together with ſeveral other Things, of which a more particular Account has been already given on another Occaſion. *Hypoth* 3. p. 95, &c. *prius.*

God ſaid, Let the earth bring forth the living creature after his kind, cattle and creeping thing, Ver. 24, 25, 26, 27.

and beaſt of the earth after his kind; and it was ſo. And God made the beaſt of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind; and God ſaw that it was good. And God ſaid, Let us make Man in our Image, after Our Likeneſs; and let them have dominion over the fiſh of the ſea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created Man in his own image; in the image of God created he him; Male and Female created he them, &c. *Vide* Ver. 28, 29, 30, 31. & Cap. II. 7, 15, &c.

XI. God having thus finiſh'd the Works of Creation, Reſted on the Seventh Day from the ſame; and Sanctified, or ſet that Day apart for a Sabbath, or Day of Reſt, to be then and afterward obſerv'd as a Memorial of his Creation of the World in the ſix foregoing, and his Reſting or Keeping a Sabbath on this ſeventh Day. Which Sabbath was reviv'd, or at leaſt its Obſervation anew enforc'd on the *Jews*, by the Fourth Commandment.

Gen. ii. 1, 2, 3. *Thus the Heavens and the Earth were finiſhed, and all the hoſt of them: And on the ſixth day God ended his work which he had made; and he reſted on the ſeventh day from all his work which he had made. And God bleſſed the ſeventh day, and ſanctified it, becauſe that in it he had reſted from all his work which God created and made.*

Exod. xx. 8, 9, 10, 11. *Remember that thou keep holy the Sabbath-day. Six days ſhalt thou labour, and do all thy work: But the ſeventh day is the Sabbath of the Lord thy God; in it thou ſhalt do no manner of work, thou, nor thy ſon,*

ſon, nor thy daughter, nor thy man-ſervant, nor thy maid-ſervant, nor thy cattle, nor the ſtranger which is within thy gates: For in ſix days the Lord made heaven and earth, the ſea, and all that in them is, and reſted the ſeventh day; wherefore the Lord bleſſed the ſeventh day, and hallowed it.

XII. There is a conſtant and vigorous Heat diffus'd from the Central towards the Superficiary Parts of our Earth.

Tho' I might bring ſeveral Arguments from Ancient Tradition, the Opinion of great Philoſophers, and the preſent Obſervations of Nature for this Aſſertion; yet I ſhall chuſe here, for Brevity ſake, to depend wholly on the laſt Evidence, and refer the inquiſitive Reader to what the Learned Dr. *Woodward* ſays in the preſent Caſe; which I take to be very ſatisfactory. And indeed, as to this internal Heat it ſelf, whether it be allow'd the Origin of Springs or not, (for ſome deny the latter, and yet aſſert the former,) it muſt however be accounted for. And if ſome may think it more eaſily aſcrib'd to the Mixture of Sulphureous, Nitrous and Mineral Principles, than to a hot central Solid; they muſt give me leave to diſſent from them for theſe two Reaſons; *viz.* *Becauſe* the Earth, at any great Depth, cannot be probably ſuppos'd cavernous or hollow enough for the making of ſuch Mixtures; and, *Becauſe* ſuch a Mixture it ſelf ſuppoſes that Heat and inteſtine Motion of Parts as *Cauſes*, which ought only to be *Effects* thereof. Beſides, there is one Argument for the Riſe of Springs from this internal Heat, which ſeems to me unanſwerable; *viz.* That the Springs break forth extraordinarily, and run the faſteſt in a Froſt, as they ought to do on this *Hypotheſis*, when the Evaporation

Eſſay, Part 3. Sect. 1.

See Mr. *Ray*'s *Diſs.* Edit. 2. p. 109.

or Exit of their Steams in the Form of Vapour, is hinder'd : But which ſeems impoſſible, if they only aroſe from the Current of Vapours in the Air ; thoſe being at that Time certainly at the greateſt Reſt and Quiet, and alſo ſmaller in Quantity than at other Times.

XIII. The Habitable Earth is founded or ſituate on the Surface of the Waters ; or of a deep and vaſt ſubterraneous Fluid.

This Conſtitution of the Earth is a natural Reſult from ſuch a *Chaos*, as we have already aſſign'd ; affords Foundation for an eaſy Account of the Origin of Mountains ; renders the Hiſtories of the ſeveral States of the Earth, and of the Univerſal Deluge very intelligible ; is as Philoſophical, and as agreeable to the common *Phænomena* of Nature, as any other. Without this Suppoſition 'twill be, I believe, impoſſible to explain what Antiquity, Sacred and Prophane, aſſures us of relating to the Earth, and its great *Cataſtrophe* ; but this being allow'd, 'twill not be difficult to account for the ſame to the greateſt Degree of Satisfaction, as will appear in the Progreſs of the preſent *Theory*. And, Laſtly, The ſame Aſſertion is moſt exactly conſonant to, and confirm'd by the Holy Scriptures ; as the following Texts will fairly evince.

Vid. Theor. l. 1. c. 5. & 11. & l. 2. c. 7, 10.

Prov. viii. 27, 28, 29. *When the Lord prepared the heavens, I was there : When he ſet a compaſs* (Circle *or* Orb) *on the face of the deep : When he eſtabliſhed the clouds above ; when he ſtrengthened the fountains of the deep : When he gave to the ſea his decree, that the waters ſhould not paſs his commandment ; when he appointed the foundations of the earth.*

He hath founded the earth upon the ſeas, and eſtabliſh'd it upon the floods. Pſ. xxiv. 2.

To him that ſtretched out the earth above the waters: for his mercy endureth for ever. & cxxxvi. 6.

This they willingly are ignorant of, that by the word of God the heavens were of old, and the earth, ſtanding out of the water, and in the water; whereby the world that then was, being overflowed with waters, periſhed. 2 Pet. iii. 5, 6.

The fountains of the great deep were broken up. Gen. vii. 11.

The fountains of the deep were ſtopped. & viii. 2.

XIV. The interior or entire Conſtitution of the Earth is correſpondent to that of an *Egg*.

'Tis very well known, that an *Egg* was the ſolemn and remarkable Symbol or Repreſentation of the World among the moſt venerable Antiquity; and that nothing was more celebrated than the Original Ὠον Ὀρφικον, *Orphic Egg*, in the moſt early Authors; which, if extended beyond the Earth, to the Syſtem of the Heavens, is groundleſs and idle; if referr'd to the Figure of the Earth, is directly falſe; and ſo is moſt reaſonably to be underſtood of the entire and internal Conſtitution thereof. *Vid. Theor.* l. 1. c. 5. & l. 2. c. 10. *Lem.* 70, & 71. *cum Coroll. prius.*

XV. The Primitive Earth had Seas and dry Land, diſtinguiſh'd from each other in great meaſure as the preſent; and thoſe ſituate in the ſame Places generally as they ſtill are.

This is put paſt doubt by Part of the third, the entire fifth, and Part of the ſixth Day's Works. One half of the third being ſpent in diſtinguiſhing the Seas from the dry Land; the entire fifth in the Production of Fiſh and Fowl Gen. i. 9, 10. Ver. 20, 21, 22, 23.

out of the Waters, and in the aſſigning the Air to the latter Sort, and the Seas to the former, for their reſpective Elements; and on the ſixth, God beſtows on Mankind the Dominion of the Inhabitants, as well of the Seas, as of the dry Land. All which can leave no doubt of the Truth of the former Part of this Aſſertion. And that their Diſpoſition was originally in the main much what as it is at preſent, appears both by the Rivers, *Tigris* and *Euphrates*, running then into the ſame *Perſian* Sea that now they do; And by the Obſervations of Dr. *Woodward*, fully confirming the ſame.

Ver. 26, 28.

Eſſay, p. 252, 253.

XVI. The Primitive Earth had Springs, Fountains, Streams and Rivers, in the ſame manner as the preſent; and for the main, uſually in or near the ſame Places alſo.

This is but a proper Conſequence of the Diſtinction of the Earth into Seas and dry Land; the latter being uninhabitable without them; and ſuch Vapours as are any way condenſed into Water on the higher Parts of the dry Land, naturally deſcending and hollowing themſelves Channels, till they fall into the Seas. However, the other direct Proofs for both Parts of the Aſſertion, are ſufficiently evident.

Prov. viii. 23, 24. *I was ſet up from everlaſting from the beginning, or ever the earth was. When there were no depths, I was brought forth; when there were no fountains abounding with water.*

Gen. ii. 10, &c. *A river went out of Eden, to water the garden; and from thence it was parted, and became into four heads; Piſon, Gihon, Tigris, und Euphrates:* The two latter of which are well-known Rivers to this very Day, tho' probably not running in the very ſame Channels as they did before the Deluge. And the ſame Thing is confirm'd by Dr. *Woodward*'s Obſervations.

Eſſay, p. 255.

XVII.

XVII. The Primitive Earth was diſtinguiſh'd into Mountains, Plains, and Vallies, in the ſame manner, generally ſpeaking, and in the ſame Places as the preſent.

This is a natural Conſequent of the two former: The Caverns of the Seas, with the extant Parts of the dry Land, being in effect great Vallies and Mountains; and the Origin and Courſe of Rivers neceſſarily ſuppoſing the ſame. (For tho' the Earth, in the *Theoriſt*'s way, were oval, which it is not; 'tis demonſtrable, there could be no ſuch Deſcent as the Courſe of Rivers requires.) However, the direct Proofs are evident.

The Lord poſſeſſed me in the beginning of his way, before his works of old. I was ſet up from everlaſting, from the beginning, or ever the earth was. Before the mountains were ſettled; before the hills was I brought forth: While as yet he had not made the earth, nor the fields, nor the higheſt part of the duſt of the world. Prov. viii. 22, 23, 25, 26.

Art thou the firſt Man that was born? or waſt thou made before the hills? Job xv. 7.

Lord, thou haſt been our dwelling-place from one generation to another. Before the mountains were brought forth, or ever thou hadſt formed the earth and the world, even from everlaſting to everlaſting, thou art God. Pſal. xc. 1, 2.

And indeed, theſe three laſt *Phænomena* are in their own Natures ſo link'd together, they ſo depend on, and infer one another mutually, that the Proofs of each of them ſingly may juſtly be eſteem'd under the ſame Character to both the other; and all of them are thereby eſtabliſh'd paſt all rational Contradiction. Of which whole Matter, Dr. *Woodward*'s Obſervations are a ſufficient Atteſtation alſo. *Eſſay*, p. 249, 252, 255, 258.

XVIII.

XVIII. The Waters of the Seas in the Primitive Earth were *Salt*, and thoſe of the Rivers *Freſh*, as they are at preſent; and each, as now, were then ſtor'd with great Plenty of Fiſh.

This appears from the Difference of the *Species* and Nature of Fiſhes; ſome being produc'd and nouriſh'd by Salt Water, others by Freſh; and yet all created on the fifth Day. And this, in all its Parts, is confirm'd by Dr. *Woodward*'s Obſervations.

Eſſay, p. 253, 254, 255.

XIX. The Seas were agitated with a like *Tide*, or *Flux* and *Reflux*, as they are at preſent.

There is in it ſelf no Reaſon to doubt of this; and 'tis moreover atteſted by Dr. *Woodward*'s Obſervations.

Eſſay, p. 254.

XX. The Productions of the Primitive Earth, as far as we can gueſs by the Remainders of them at the Deluge, differ'd little or nothing from thoſe of the preſent, either in Figure, Magnitude, Texture of Parts, or any correſpondent Reſpect.

This is prov'd by Dr. *Woodward*'s Obſervations.

Eſſay, p. 22, 23, 258.

XXI. The Primitive Earth had ſuch *Metals* and *Minerals* in it, as the preſent has.

In the land of Havilah there was gold; and the gold of that land was good: There was Bdellium, and the Onyx-ſtone.

Gen. ii. 11, 12.

Tubal-Cain was an inſtructor of every artificer in braſs and iron. Which is withal atteſted by Dr. *Woodward*'s Obſervation.

Gen. iv. 22. *Eſſay*, Part 4. Vid. p. 258, 259.

XXII.

XXII. Arts and Sciences were invented and improv'd in the Firſt Ages of the World, as well as they ſince have been.

Abel was a keeper of ſheep, but Cain was a tiller of the ground. Gen. iv. 2.

Cain builded a city, and called it after the name of his ſon Enoch. Ver. 17.

Jabal was the father of ſuch as dwell in tents, and of ſuch as have cattle. Ver. 20.

Jubal was the father of all ſuch as handle the harp and organ. Ver. 21.

Tubal-Cain was an inſtructor of every artificer in braſs and iron. Ver. 22. See alſo the Right Reverend Biſhop *Patrick*, on *Gen.* iv. 20, 21, 22, 25. and v. 18. and *Plat. Politic. Operum* pag. 177, A. *citat. apud Hypoth.* x. p. 172. *Not.* (*a*) *prius.*

CHAP. II.

Phænomena *relating to the* Primitive *State of the Earth.*

XXIII. THE *Primitive* State of the Earth admitted of the Primary Production of Animals out of the Waters and dry Ground, which the ſubſequent States, otherwiſe than in the ordinray Method of Generation, have been incapable of. (*b*)

(*b*) ΞΕΝ. Καὶ μὰν αὖ κἀγὼ γε βασιλείαν ἣν ἦρξε Κρόνος, πολλῶν ἀκηκόαμεν. ΣΩ. Πλείστων μὲν οὖν. ΞΕΝ. Τί οὖν, τὸν πρὸ ἐμοῦ φύεσθαι γηγενεῖς, καὶ μὴ ἐξ ἀλλήλων γιγνέσθαι;

This

Vide Grot. Verit. Rel. Christ. l. 1. §. 16. Theor. l. 1. c. 5. l. 2. c. 7.

This appears from the Hiſtory of the Creation, compar'd with that of Nature ever ſince. By the former of which, (agreeing with the oldeſt Traditions) 'tis evident, That the Fiſhes and Fowls were the immediate Productions or Offſpring of the Waters, and the Terreſtrial Animals of the dry Land, in the *Primitive* State of the Earth: And by the latter 'tis equally ſo, that neither of thoſe Elements have afforded the like ever ſince.

XXIV. The Conſtitution of Man, in his *Primitive* State, was very different from that ever ſince the Fall, not only as to the Temper and Perfections of his Soul, but as to the Nature and Diſpoſition of his Body alſo.

This the whole Drift and *Series* of the Sacred Hiſtory of this Primitive State ſuppoſes; in which, theſe two Particulars may here be taken notice of: (1.) Nakedneſs was (*c*) no Inconvenience and no Shame, and ſo no Senſe of any need to cover it does appear. Thoſe Inclinations which provide for the Propagation of Mankind, were, it ſeems, ſo regular, and ſo entirely under the Command of Reaſon, that not ſo much as an

Gen. ii. 25. *and* iii. 7, 10, 11.

ΣΩ. Καὶ τῶτο ἓν τ πάλαι λεχθέντων. Platonis Politicus, pag. 174. G. Edit. Lugdun. 1590.

ΣΩ. Γένεσις δέ πς τοτ' ἰῶ, ὦ ξένε, ζώων; Καὶ πίνα τρόπον ἐξ ἀλλήλων ἐγιγνῶντο; ΞΕΝ. Δῆλον, ὦ Σώκρατες, ὅτι τὸ μὴ ἐξ ἀλλήλων ὐκ ἰῶ ἐν τῇ τότε φύσῃ γιγνόμενον· τὸ δ' γηγενὲς εἶναι ποτε γένεσθαι λεχθὲν, τοτ' ἰῶ τὸ κατ' ἐκεῖνον τ χρόνον, ἐκ γῆς πάλιν ἀναστρεφόμενον. Ibid. pag. 175. E.

Οὐδὲ κτήσεις γυναικῶν κὴ παιδῶν· ἐκ γῆς γὰρ ἀνεβιώσκοντο πάντες. Ibid. pag. 176. A.

(*c*) Γυμνοὶ δὴ κὴ ἄστρωτοι διεσαυλοῦντες τὰ πολλὰ ἐνέμοντο. Τὸ γὰρ τ ὡρῶν σύστασις ἄλυπον ἐκέκρατο· μαλακοὺς δὲ ἐυναὶς εἶχον, ἀναφυομένης ἐκ γῆς πόας ἀφθόνου. Ibid. pag. 176. A.

Apron

Apron was eſteem'd neceſſary to hide thoſe Parts; which all the World have ſince thought proper to do. (2.) The Temper of the Human Body was more (*d*) ſoft, pliable, and alterable than now it is: Some Sorts of Fruits and Food were capable of cauſing a mighty Change therein, either to fix and adapt it to its preſent Condition, or diſcompoſe and diſorder it; *i. e.* in other words, either to render it permanent and immortal on the one hand; or to devolve upon it Diſeaſes, Corruption and Mortality, on the other. What concerns the Soul, or its Moral Perfections, is without the Compaſs of this *Theory*, and not here to be conſider'd.

Cap. ii. 9, 16, 19. *and* iii. 1, &c.

XXV. The Female was then very different from what ſhe is now; particularly ſhe was in a State of greater Equality with the Male, and little more ſubject to Sorrow in the Propagation of Poſterity than he.

(1.) Her Names were, as much as poſſible, the very ſame with his. The Husband was call'd *Adam*, the Wife *Adamah*; the Husband *Iſh*, the Wife *Iſhah*. *God called their name Adam, in the day that they were created. She ſhall be called Iſhah, becauſe ſhe was taken out of Iſh.* (2.) We find little to infer any Inequality, or Subjection, till after the Fall. *Adam ſaid, This is now bone of my bone, and fleſh of my fleſh: Therefore ſhall a man leave his father and his mother, and ſhall cleave unto his wife; and they ſhall be one fleſh. Unto the woman God ſaid,* (after the Fall) *Thy de-*

Gen. v. 2. *and* ii. 23.

Chap. ii. 23, 24.

Chap. iii. 16.

(*d*) Ἦν ἡλικίαν ἕκαστον εἶχε τῶν ζώων, αὐτη σφῶν μὲν ἔστι πάντων, καὶ ἐπαύσατο πᾶν ὅσον ἰῶ θνητὸν, ὅτι τὸ γεραίτερον ἰδεῖν πορδύμφον, μεταβάλλον ἢ πάλιν ὅτι τέναντον. οἷς νεώτερον καὶ ἀπαλώτερον ἐφυέτο. Plat. Politic. pag. 175. D.

ſire

ſire ſhall be (ſubject to) thine husband, and he ſhall rule over thee. (3.) Her Pains in Conception and Childbirth were to be inconſiderable, in Compariſon of what they ſince have been. *Unto the woman God ſaid,* (after the Fall) *I will greatly multiply thy ſorrow, and thy conception; in ſorrow thou ſhalt bring forth children.*

Ibid.

XXVI. The other Terreſtrial Animals ſeem to have been in a State of greater Capacities and Operations; nearer approaching to Reaſon and Diſcourſe, and Partakers of higher Degrees of Perfection and Happineſs, than they have been ever ſince. (*e*)

This appears, (1.) From the Neceſſity or Occaſion of a particular View, and diſtinct Conſideration of each *Species* of Animals, before *Adam* was ſatisfy'd that none of them were a Help-meet for him, or ſuitable to him. (2.) From the *Serpent*'s Diſcourſe with the Woman: In which, to argue from the common Opinion, tho' the *Old ſerpent, the Devil,* was principally concern'd, yet the

Gen. ii. 20.

(e) Τὸν δὴ βίον, ὦ Σώκρατες, ἀκούεις μὲν ἤ τ ὅτι Κρόνου τόνδε δ' ὡς λόγ@ ὅτι Διὸς ἦν) ἤ νυνὶ, παρὼν αὐτὸς ἤσθησαι. Κρίναι δ' αὐτοῖν ἤ εὐδαιμονέστερον ἆρ' ἄν δυνατόν τε καὶ ἐθελήσαι; ΣΩ. Οὐδαμῶς. ΞΕΝ. Βούλει δῆτα ἐγὼ σοι τρόπον τινὰ διακρίνω, ΣΩ. Πάνυ μὲν οὖν. ΞΕΝ. Εἰ μὲν τοίνυν οἱ τροφιμοι τῆς Κρόνου, παρούσης αὐτοῖς ἅτα πολλῆς σχολῆς καὶ δυνατότητος πρὸς τὸ μὴ μόνον ἀνθρώποις ἀλλὰ καὶ θηρίοις διὰ λόγων δύνασθαι συγγίγνεσθαι, κατεχρῶντο τούτοις σύμπασιν ὅτι φιλοσοφίαν, μετά τε θηρίων καὶ μετ' ἀλλήλων ὁμιλοῦντες, καὶ πυνθανόμενοι πρὸς πάσης φύσεως εἴ τινα τις ἰδίαν δυνάμιν ἔχοι ἅτα ἤσθετό τι διάφορον ἤ ἄλλου, εἰς διαγωγὴν φρονήσεως· εὔκριτον ὅτι ἤ νῦν οἱ τότε μυρίῳ πρὸς εὐδαιμονίαν διέφερον. Εἰ δ' ἐμπεπλήσθησαν σίτων ἅδην καὶ ποτῶν, διελέγοντο πρὸς ἀλλήλους καὶ τὰ θεῖα, μύθους ἅπερ καὶ νῦν πολλοὶ αὐτῶν λέγονται, καὶ σφόδρα, ὥστε κατὶ ἤ δόξαν ἀποφαίνασθαι, καὶ μάλ' εὔκριτον. Plat. Politic. p. 176. A. B.

par-

particular *Subtility of the Serpent* is taken notice of as a means of her Deception, and a Curſe denounced and inflicted on the ſame Beaſt upon acccunt thereof. *Now the* Serpent *was more ſubtil than any beaſt of the field, which the Lord God had made,* &c. *I fear leſt by any means as the* Serpent *beguiled* Eve *through his ſubtilty. The Lord God ſaid unto the* Serpent, *Becauſe thou haſt done this, thou art curſed above all cattle, and above every beaſt of the field; upon thy belly ſhalt thou go, and duſt ſhalt thou eat all the days of thy life.* (3.) From St. *Paul*'s Diſcourſe in the Eighth Chap. to the *Romans*, to argue here alſo on a common Opinion, *For the carneſt expectation of the creature waiteth for the manifeſtation of the Sons of God. For the creature was made ſubject to vanity, not willingly, but by reaſon of him who hath ſubjected the ſame in hope: Becauſe the creature it ſelf alſo ſhall be delivered from the bondage of corruption, into the glorious liberty of the children of God. For we know that the whole creation groaneth and travelleth in pain together, until now.*

Gen. iii 1. 2 Cor. xi 3. Gen. iii. 14. Rom. viii. 19, 20, 21, 22.

XXVII. The temper of the Air, where our firſt Parents liv'd, was warmer, * and the Heat greater before the Fall than ſince.

*Vid. Plat. Politic. p. 176. A. prius ad Phænom. 24. citat.

This appears, (1.) From the heat requiſite to the Production of Animals, which muſt have been greater than we are ſince ſenſible of. Of which the Wombs wherein the *Fætus* in *viviparous* Animals do lye, and the warm brooding of the *Oviparous*, with the hatching of Eggs in Ovens are good evidence. (2.) From the Nakedneſs of our firſt Parents. (3.) From that peculiarly warm Cloathing they immediately ſtood in need of afterwards, the Skins of Animals. *Unto* Adam *alſo*, (after the Fall) *and*

Gen. ii. 25. Chap. iii. 21.

to his Wife, did the Lord God make Coats of Skins, and clothed them.

XXVIII. Thoſe Regions of the Earth where our firſt Parents were plac'd, were productive of better and more uſeful Vegetables, with leſs Labour and Tillage than they have been ſince. (*f*).

Gen.ii.15 *The Lord God took the Man, and put him into the Garden of* Eden *to dreſs it, and to keep it*; (before the Fall.)

Chap. iii 17,18,19 *The Lord God ſaid unto* Adam, (after the Fall) *Curſed is the ground for thy ſake; in Sorrow ſhalt thou eat of it all the days of thy life. Thorns alſo and Thiſtles ſhall it bring forth to thee, and thou ſhalt eat the Herb of the Field. In the Sweat of thy Face ſhalt thou eat Bread, till thou return unto the Ground, for out of it waſt thou taken.*

XXIX. The *Primitive* Earth was not equally Paradiſiacal all over. The Garden of *Eden* or Paradiſe being a peculiarly fruitful and happy Soil, and particularly furniſh'd with the Neceſſaries and Delights of an innocent and bleſſed Life, above the other Regions of the Earth.

Gen.ii. 8, 9. *The Lord God planted a Garden* Eaſtward *in* Eden, *and there he put the man whom he had form-*

(*f*) Καρπὸς ὃ ἀφθόνως εἶχον ἀπό τε δρυῶν καὶ πολλῆς ὕλης ἄλλης, ἀχ' ὑπὸ γεωργίας φυομένης, ἀλλ' αὐτομάτης ἀναδιδόσης τὴν γῆν. Γυμνοὶ δὲ καὶ ἄστρωτοι διεγαυλοῦντες τὰ πολλὰ ἐνέμοντο. Τὸ γὰρ τῶν ὡρῶν αὐτοῖς ἄλυπον ἐκέκρατο· μαλακὸς δὲ ἐυναὶ εἶχον, ἀναφυομένης ἐκ γῆς πόας ἀφθόνου. Plat. Politic. pag. 176. A.

Ὁ δ' ἦρα περὶ τὰ πάντα αὐτόματα γίγνεσθαι τοῖς ἀνθρώποις, ἥκιστα τὸν νῦν ὄντα καθεστηκυίας φορᾶς, ἀλλ' ἦν καὶ τοῦτο τὸ ἔμπαλιν. Vid. pag. 175. G.

ed:

ed : And out of the Ground made the Lord God to grow every tree that is pleaſant to the ſight, and good for food; the tree of life alſo in the midſt of the Garden, and the tree of Knowledge of good and evil.

The Lord God ſent the Man forth from the Garden of Eden *to till the Ground from whence he was taken : So he drove out the Man.* Chap. iii. 23, 24.

XXX. The ancient Paradiſe or Garden of *Eden*, the Seat of our firſt Parents in the State of Innocence, was about the *North-Weſt* Bounds of *Aſſyria*, at the River *Tigris* and *Euphrates*: (for their *Antediluvian* Streams ſeem to have been united before they were come ſo far as *Aſſyria* :) a little below which place they were parted into four Branches, and ſo ran into the great *Southern* Ocean call'd by the Ancients the *Red-Sea*, at four Out-lets at no ſmall diſtance from one another.

Of this ſee the fourth *Hypotheſis* before laid down.

XXXI. The Earth in its *Primitive* State had only an *Annual* Motion about the Sun : But ſince, it has a *Diurnal* Rotation upon its own *Axis* alſo : Whereby a vaſt difference ariſes in the ſeveral States of the World.

Of this, with its neceſſary conſequents, ſee the third *Hypotheſis* before laid down. Nay *Plato* will give us account of more Mutations than are there mention'd ; Earthquakes and Deſtruction of Animals at firſt, till afterwards all went on

again in due order. Which are not hard to be solv'd on the present *Hypothesis*. (g)

XXXII. Upon the first commencing of this *Diurnal* Rotation after the Fall, its *Axis* was oblique to the plain of the Ecliptick as it still is: Or in other words, the present Vicissitudes of Season, *Spring*, *Summer*, *Autumn*, and *Winter*, arising from the Sun's access to, and recess from the *Tropicks*, have been ever since the Fall of Man.

Gen. i. 14. *God said*, on the fourth Day, *Let there be lights in the Firmament of the Heaven, to divide the Day from the Night*; which was their proper Office till the Fall. *And let them be*, ever after, *for Signs, and for Seasons, and for Days, and Years.* Chap. viii. ult. After the Flood, *While the Earth remaineth, Seed-time and Harvest, and Cold and Heat, and Summer and Winter, and Day and Night shall not cease.* Implying that tho' the

---

(g) Ὁ δὴ [κόσμος] μεταστρεφόμενος καὶ συμβάλλων, ἀρχῆς τε καὶ τελευτῆς ἐναντίαν ὁρμὴν ὁρμηθεὶς, σεισμὸν πολὺν ἐν ἑαυτῷ ποιῶν, ἄλλον αὖ φθορὰν ζώων παντοίων ἀπεργάσατο. Μετὰ δὲ ταῦτα, στασιάζοντος ἱκανῷ χρόνῳ, στρύβλου τε καὶ ταραχῆς ἤδη παυόμενος καὶ τοῦ σεισμοῦ, γαλήνης ὁπλαβόμενος, εἰς τε τὴν εἰωθυῖαν δρόμον τὴν ἑαυτοῦ κατακοσμούμενος ἦει, &c. Plat. Polit. 176. D. Vide & pag. 175. C.

Στρεφθέντος δὲ αὖ τοῦ κόσμου τὸν ὀπὶ τὸν νῦν χρόνον ὁδὸν, τὸ τῆς ἡλικίας αὖ παλιν ἴσχυσε, καὶ καινὰ τἀναντία ἀπεδίδου τοῖς πρότερον. Ibid. pag. 176. F.

Τῆς δὲ τοῦ κεκτημένου καὶ νέμοντος ἡμᾶς δαίμονος ἀπερημωθέντες ὑπηρεσίας, καὶ πολλῶν αὖ θηρίων, ὅσα κατὰ τὰς φύσεις ἦν, ἀπολειφθέντων, αὐτοὶ δὲ ἀθενεῖς ἄνθρωποι καὶ ἀδύλακτοι γεγονότες, διηπάζοντο ὑπ' αὐτῶν, καὶ ἔτ' ἀμήχανοι καὶ ἄτεχνοι τῶν πρόσθεν ἦσαν κρόνου, ἄτε τῆς μὲν αὐτομάτης βυφῆς ὑπολελοιπυίας· ποικίλης δὲ ἢ ὅπως ἁμωσί που, διὰ τὸ μηδεμίαν αὐτοὺς χρείαν πρότερον ἀναγκάζειν. Ἐκ τούτων πάντων ἐν μεγάλαις ἀπορίαις ἦσαν. Ibid. pag. 177. A.

Seasons

Seaſons, as well as Night and Day, had been, during the Deluge, ſcarcely diſtinguiſhable from one another; yet the former as well as the latter Diſtinction had been in Nature before: And ſurely the Spring, Summer, Autumn and Winter, with their Varieties of Cold and Heat, Seed-time and Harveſt, were no more originally begun after the Deluge, than the Succeſſion of Day and Night mention'd here together with them is by any ſuppos'd to have been. But of this we have at large diſcours'd under the third *Hypotheſis* foregoing already; to which the Reader is farther referr'd for Satisfaction.

XXXIII. Since the Commencing of this diurnal Rotation, the inward and central Parts have not revolv'd quite ſo faſt as the outward and ſuperficial,

This appears by what has been ſaid under the IIId Hypotheſis already.

XXXIV. As a Conſequence of the former it appears that the Cauſe of the Diurnal Rotation was ſome force impreſſed on the outward and ſuperficial Parts, and thence communicated to the inward.

This appears from the ſame IIId *Hypotheſis.*

CHAP. III.

Phænomena *relating to the* Antediluvian *State of the Earth.*

XXXV. THE Inhabitants of the Earth were before the Flood vaſtly more numerous than the preſent Earth either actually does, or perhaps is capable to contain and ſupply.

In order to the Proof of this Aſſertion, I obſerve, (1.) That the Poſterity of Each Generation of the *Antediluvians*, is to be ſuppos'd much more numerous than of any ſince, becauſe their Lives were much longer. This is but agreeable to the ſacred Hiſtory, in which we find two at ſixty five, and one at ſeventy Years of Age to have begotten Children: While the three Sons of *Noah* were not begotten till after their Father's five hundredth year: Whereas yet at the ſame time the ſeveral Children of the ſame Father appear to have ſucceeded as quickly one after another as they uſually do at this day. For as to *Cain* and *Abel*, they appear to have been pretty near of an Age, the World being at the death of the latter, not without conſiderable numbers of People, tho' their Father *Adam* was not then an hundred and thirty Years old; and ſo in Probability contain'd many of the Poſterity of both of them. (Which by the way fully eſtabliſhes the early begetting of Children juſt now obſerv'd in the *Antediluvian* Patriarchs, and if rightly conſider'd, overturns a main Argument for the *Septuagint*'s Addition of ſo many Centena-

Gen. v. 15. 21. ver. 12. ver. 32.

Gen. iv. 14. 15. *with* 25.

Vid. Cap. vii. 13. *with* v. 31.

ries in the Generations before the Deluge.) And as to the three Sons of *Noah*, born after the five hundredth Year of their Father's Life, 'tis evident that two of them at the leaſt, *Japhet* and *Shem*, were born within two Years one after another. All which makes it highly reaſonable to ſuppoſe, that ſince the Lives of the Antediluvians were much longer, their Poſterity muſt have been much more numerous than that of the Poſtdiluvians. (2.) The Lives of the Antediluvians being pretty evenly prolong'd without that mighty inequality in the Periods of human Life, which we now experience, and commonly amounting to 800 Years at the leaſt, whereas the Modern Age of Men at the utmoſt is not 80, the proportion between the Lives of the Antediluvians and thoſe of the Poſtdiluvians, muſt at leaſt be taken as about 10 to 1. And accordingly in any long ſpace, the Antediluvians muſt double themſelves at the leaſt, in about the tenth part of the time in which they now double themſelves. (3.) On account of the *Coexiſtence* of ſo many of ſuch Generations as are but ſucceſſive with us, we muſt allow the Antediluvian number of the preſent Inhabitants to have been ſo much greater than it would otherwiſe have been, as to ſupply any defect which might ariſe from any other Circumſtances not here particularly conſider'd; So that on all accounts the before-mention'd proportion for the doubling themſelves ought to be eſteem'd a very fair and moderate one in this caſe; which *Præcognita* ſuppos'd, in order to the proof of this Aſſertion I obſerve, That 'tis now generally own'd, and this from good Obſervations, that Mankind do double themſelves in about 360 or 370 Years; or, allowance being made for

Gen. v. 32. & vii. 11. & viii. 13. *with* xi. 10.

See Sir Will. Petty's *Eſſay on the Multiplication of Mankind: And Philoſ. Tranſact.* N. 196, P. 597, &c.

all but very uncommon, and very rare Caſes of general Wars, Famines, Plagues and ſuch like ſweeping Deſolations, in about 400 Years; which therefore is to be ſuppos'd the proportion ever ſince the preſent Period of human Life was fix'd in the Days of *David*. 'Tis alſo evident that from the Creation till the Deluge, the Lives of Men were at the leaſt ten times as long as they have been in theſe latter Ages of the World, as was juſt now obſerv'd; 'tis therefore evident that the Period for the Doubling of Mankind, from the Creation till the Deluge, muſt have been about ten times ſhorter than that which has of late obtain'd in the World, by reaſon of their ancient longer Lives in that proportion; ſo that if we have a *Series* of 40 Numbers beginning at 2 (for ſo many God created himſelf at firſt;) and doubling themſelves in 40, or for convenience 41 Years in a mean, or one Age with another till the Deluge, *i. e.* for about 1556 or 1656 Years, we ſhall in ſome degree obtain the ſum total of Mankind at the Deluge, and alſo in the ſeveral Ages before that time. (Tho' ſtill this Period of doubling, muſt have been much *ſhorter* and *longer* in the *earlieſt* and *lateſt* times of the ſaid Interval.) Which Computation take in the following Table.

Series

Series.	Years of Doubling.	Years of the World.	Number of Mankind.
1	2	2	4
2	4	6	8
3	6	12	16
4	8	20	32
5	10	30	64
6	12	42	128
7	14	56	256
8	16	72	512
9	18	90	1024
10	20	110	2048
11	22	132	4096
12	24	156	8192
13	26	182	16,385
14	28	210	32,768
15	30	240	65,536
16	32	272	131,072
17	34	306	262,144
18	36	342	524,288
19	38	380	1,048,576
20	40	420	2,097,152
21	42	462	4,194,304
22	44	506	8,388,608
23	46	552	16,777,216
24	48	600	33,554,432
25	50	650	67,108,864
26	52	702	134,217,728
27	54	756	268,435,456
28	56	812	536,870,912
29	58	870	1,073,741,824
30	60	930	2,147,483,648
31	62	992	4,294,967,296
32	64	1056	8,589,924,592
33	66	1122	17,179,869,184
34	68	1190	34,359,738,368
35	70	1260	68,719,476,736
36	72	1332	137,438,953,472
37	74	1406	274,877,906,944
38	76	1482	549,755,813,888

From

From which Computation it is evident that the Number of the Antediluvians before the Deluge would eaſily amount to above 500,000 Millions, *i. e.* to 100 times as many as our preſent Earth has in all probability now upon it; and indeed to 10 times ſo many as the preſent Earth can well be ſuppos'd capable of maintaining in its preſent Conſtitution ſince the Deluge. And that this vaſt number may not ſeem at all incredible, nor to be only built on precarious and imaginary Suppoſitions, I ſhall farther ſhew from a known Inſtance, built on matter of Fact, that the Antediluvians might eaſily be rather more than fewer in number than thoſe aſſign'd in the foregoing Computation. For 'tis evident from the Sacred Hiſtory, and not to be denied by thoſe who forſake the *Hebrew* Chronology themſelves, or who would leſſen the numbers of the Antediluvians; That in the Space of about two hunderd ſixty ſix Years, the Poſterity of *Jacob* alone, by his Sons, (without the Conſideration of *Dinah* his Daughter) amounted to ſix hundred thouſand Males above the Age of Twenty, all able to go forth to War, Now by Mr. *Graunt*'s Obſervations on the Bills of Mortality it appears that about $\frac{34}{100}$ are between the Ages of ſixteen and fifty ſix: Which may be near the Proportion of the *Males* numbred, to the entire Number of them all. So that as thirty four to an hundred, by the Golden Rule, muſt ſix hundred thouſand be to the entire Number of the Males of *Iſrael* at that time: Which was therefore one Million ſeven hundred ſixty four thouſand and ſeven hundred. To which add *Females*, near $\frac{1}{15}$ fewer, as ſuppoſe, to make the Sum even, one Million ſix hundred thirty five thouſand,

Exod. xii. 37. Numb. i. 45, 46.

Pag. 85.

Pag. 104.

thouſand, three hundred, the *Total* is, three millions, and four hundred thouſand; add forty three thouſand for the *Levites*, (not included in the former accounts,) the entire Sum will at laſt amount to three Millions, and four hundred forty three thouſand Souls. Now if we ſuppoſe the increaſe of the Children of *Iſrael* to have been gradual, and proportionable through the whole two hundred ſixty ſix Years, it will appear that they doubled themſelves every fourteen Years at leaſt; which Proportion, if we ſhould continue it through the entire hundred and fourteen Periods, (which the ſpace from the Creation to the Deluge admits) the product or number of People on the Face of the Earth at the Deluge would be at leaſt the hundredth in a Geometrick double Proportion, or *Series* of numbers, two, four, eight, ſixteen, *&c.* where every ſucceeding one were double to that before it: Which to how immenſe a Sum it would ariſe, thoſe who know any thing of the nature of Geometrick Progreſſions will eaſily pronounce, and may be ſoon tried by any ordinary Arithmetician. So that if the Antediluvians had only multiplied as faſt before, as 'tis certain the *Iſraelites* did ſince the Flood for the aſſigned term; the numbers of Mankind actually Alive and *Coexiſting* at the Deluge, muſt have been, not only more than the Earth now does or poſſibly could maintain, but prodigiouſly more than the whole number of Mankind can be juſtly ſuppos'd ever ſince the Deluge; nay indeed, with any degree of likelihood, ever ſince the Creation of the World. On which Account this Calculation muſt not be at all eſteem'd a real one, or to exhibit in any meaſure the juſt Number of the Poſterity of *Adam* alive at the univerſal Deluge. However, this Calculation

Num. iii. 39. Cap. i. 47. 41, 49.

ſerves

ſerves to ſhew how vaſtly numerous, according to the regular method of human Propagation, the Offspring of a ſingle Perſon may certainly be; and this on a Calculation from undoubted matter of Fact, not from a meer poſſible Hypotheſis, (according to which Numbers prodigiouſly greater would ſtill ariſe:) It demonſtrates the Probability, if not Certainty, of Mankind's Original from a common Head as well before as ſince the Deluge, and that within a few Millenaries of years: It, laſtly, is more than ſufficient to demonſtrate the Propoſition we are upon, that the whole Earth muſt have been peopled long before the Flood, and at its Approach have contain'd conſiderably more in Number than the preſent does.

Scholium. Since we have here ſuppos'd that the general Standard for the doubling of Mankind in theſe latter Ages of the World is about 400 Years, allowance being therein made for all but very uncommon and very rare Caſes of general Wars, Famines, Plagues, and ſuch like ſweeping Deſolations; and ſince we have alſo ſuppos'd that the Period of Doubling muſt ſtill be ſo much ſhorter, as the Lives of Men in different Ages appear to be longer, It will be proper and uſeful in this place to examine this Matter a little farther, and to confirm both parts of the preſent *Hypotheſis* by comparing it with the utmoſt Ancient and Authentick, nay indeed, with the only Ancient and Authentick Account of this matter we have in the World; and that is with the time of Doubling among the Children of *Iſrael* from their Entrance into the Land of *Canaan*, till the time of King *David*; at both which points of Time their Numbers were exactly taken, and are as exactly Recorded

corded in the Sacred Scriptures. The whole Number of the Children of *Iſrael* (excepting the Tribes of *Levi* and *Benjamen*, which were not numbred by *Joab* the ſecond time) above 20 Years old, counting only the Males, juſt before their entring into the Land of *Canaan* was 556, 130. Between this time of the numbring by *Moſes* and that by *David* there were about 430 Years. The uſual Period of Human Life in a mean was then at the leaſt longer than the preſent, in the Proportion of 100 to 75, or 4 to 3 as will eaſily appear by the Table of the Poſtdiluvians Lives to be hereafter given; ſo that if 400 Years be the Period of Doubling with us, 300 Years muſt have been the Period of Doubling in the Interval we now ſpeak of. Say therefore by the Rule of Three, If three hundred Years double the People, or produce 1, 112,260 of Males above 20 Years of Age, how many by a proportionable increaſe will 430 Years produce? The Product whereof is 1,594,236, or in a round Number 1,600,000, which therefore, according to the fore-mention'd rate, ought to be the Number of the *Iſraelites* at the time when *David* numbred them about 430 Years afterward. Now the number of the *Iſralites* taken by *Joab* was expreſly 800,000 valiant Men that drew the Sword. Beſides which there were 12 Companies of 24,000 Men apiece already number'd and enrol'd, to wait by turns on the King in the 12 Months of the Year: Which are therefore 288,000. So that the total Number of the Men of all *Iſrael* was 1,088,000, or in a round Number 1,100,000 Men: as 'tis expreſly in the Book of *Chronicles*. To which add the Men of *Judah* 470,000; or in a round Number, as the Second Book of *Samuel* has it, whether including or not the ſmall Tribe

Numb. xxvi. 41, 51.

Phænom. 71. infra.

2 Sam. xxiv. 9. 1 Chron. xxvii. 1

1 Chron. xxi. 5. Ibid.

2 Sam. xxiv. 9.

Tribe of *Benjamin* does not appear, 500,000 Men. And ſo at laſt the total Sum is in a round Number 1,600,000 Men, which is the very ſame Number with the former produc'd by the Arithmetical Calculation above, and ſo highly worthy of our regard and admiration. We may therefore, upon the whole matter, reaſonably conclude that, excepting only what diſturbance very rare and very uncommon Wars, Famines, Plagues and ſuch other mercileſs deſtroyers of Men have given thereto, Mankind have generally increas'd in nearly the ſame determinate Proportion, and doubled themſelves in 400 Years or thereabout for this 2,700 Years, ſince the fixing the preſent Period of Human Life in the Days of *David*; and that in the former Ages the Period for ſuch their doubling was ſtill about ſo much ſhorter as their Lives were longer than that common Standard which has obtain'd in theſe latter Ages of the World: Upon which *Hypotheſis* all the Computations of this Nature are by me built, and are, as far as appears, very agreeable to all the ancient Hiſtories of Mankind.

Gen.xii.2. & xiii.16. & xv. 5. & xvii. 2. 4, 5, 6. &xxii.17. &xxvi. 4. &xxviii. 14. & xxxij. 12. Exod. i. 7, 9. & xxxii. 13. Numb. xxiii. 10. Deut. i. 10, 11. Iſa.48.19. Jer.xxxiii 22. Heb. xi. 12. Exek.xvi. 7.

Corollary. *The Increaſe of the Children of* Iſrael, *during their abode in the Land of* Egypt, *was Extraordinary, and very much quicker than the common rate of the Increaſe of Mankind in thoſe Ages, nay than their own Increaſe afterwards; and was no other than a ſignal and remarkable fulfilling of thoſe many Promiſes God had made to their Fore-fathers, concerning ſuch their vaſt Multiplication and Increaſe, till by their frequent Murmurings, Diſobedience, Idolatry, and Wickedneſs in the Wilderneſs and in the Land of* Canaan, *He took away his extraordinary bleſſing from them, and left them to the common and uſual courſe of Nature ever afterwards. For tho', as Sir* William Petty *has obſerv'd*

ſerv'd, in his ſmall but excellent Eſſay, *concerning the* Multiplication of Mankind, *The time of doubling without a Miracle* might Poſſibly *be no longer than the ſpace of* 10 *Years, according to the preſent Obſervations in ſome particular Families, even conſidering the ſhortneſs of the Period of Human Life now; and ſo at the time of the* Egyptian *Bondage* might poſſibly *have been ſtill almoſt as ſhort again, becauſe their Lives were then almoſt as long again; yet, as he alſo obſerves, the Increaſe of Mankind in general, or of any conſiderable Number of Families together, has not* actually been *any where ſo great as to double it ſelf in leſs than* 120 *Years time: Which is much the ſame as if the* Iſraelites *had doubled themſelves in* 60 or 70 *Years only; whereas if we compute the Increaſe of the* Iſraelites *from thoſe* 70 *Souls which came into* Egypt *till they became in all at their* Exodus *near three Millions and an half,* i. e. *in about* 215 *Years ſpace, We ſhall find that they all along in a mean doubled themſelves in* 15 *Years time; which very ſhort Period of doubling, and the prodigious increaſe thence ariſing, tho it be by no means properly* miraculous, *yet was very unuſual and* extraordinary; *and a moſt eminent inſtance of the peculiar Bleſſing and Providence of God towards that Nation, and of the fulfilling of his ancient Promiſes made to that People.*

Coroll. 2. *Since therefore the vaſt numbers of the* Jews *at the deſtruction of* Jeruſalem *by* Titus, *and afterwards in the Days of* Trajan *and* Adrian, *notwithſtanding the return of only a part of that People, after the* Babyloniſh *Captivity, atteſted to by all the profane Hiſtorians, does fully confirm and juſtify the ſacred Accounts of their Numbers in the elder Days of* David *and* Moſes, *It is certain that there was a peculiar Providence toward that Nation from the eldeſt times of it, and ſuch an one as is wholly unexampled among all the reſt of the Nations of the Earth.*

XXXVI. The Brute Animals whether belonging to the Water or Land, were, proportionably at leaſt, more in number before the Flood than they are ſince.

This is I think generally look'd upon as no other than a reaſonable Deduction from the laſt Propoſition; and is very fully atteſted by Dr. *Woodward*'s Obſervations, as far as the remains of thoſe Ages afford any means of knowing the ſame; And ſo ought in reaſon to be univerſally allow'd.

Eſſay, p. 257, 258.

XXXVII. The *Antediluvian* Earth was much more fruitful than the preſent; and the multitude of its vegetable productions much greater.

This is both neceſſary to be allow'd by reaſon of the multitude of its Inhabitants, rational and irrational, maintained by them; of which before: And abundantly confirm'd alſo by Dr. *Woodward*'s Obſervations.

Eſſay, p. 84, &c. & 257. 258.

XXXVIII. The Temperature of the *Antediluvian* Air was more equable as to its different Climates, and its different Seaſons; without ſuch exceſſive, and ſudden heat and cold; without the ſcorching of a *Torrid Zone*, and of burning Summers; or the freezing of the *Frigid Zones*, and of piercing Winters; and without ſuch ſudden and violent changes in the Climates or Seaſons from one extreme to another, as the preſent Air, to our ſorrow, is ſubject to.

Theor. l. 2. c. 1. & 10 Archæ. l. 2. c. 5, & 6.

Theſe Characters are extremely agreeable to, and atteſted by, the ancient Accounts of the Golden

Golden Age. The Gentleneſs of the *Torrid* and *Frigid Zones* is neceſſary to be ſuppos'd in order to the eaſy Peopling of the World, with the diſperſion and maintenance of thoſe numerous Inhabitants we before prov'd it to have contain'd: Which, if they were as now they are, would be very difficultly accountable. The Gentleneſs of Summer and Winter, with the eaſy and gradual coming on, and going off of the ſame Seaſons, are but neceſſary in order to the very long Lives of the Antediluvians; which elſe 'twere not ſo eaſy to account for. And indeed the moſt of thoſe Teſtimonies which have been ſuppos'd favourable to a perpetual Equinox before the Deluge, are reſolv'd into this Propoſition; and if it can be ſeparately eſtabliſh'd, need not to be extended any farther.

XXXIX. The Conſtitution of the Antediluvian Air was Thin, Pure, Subtile and Homogeneous; without ſuch groſs Steams, Exhalations, Nitroſulphureous, or other Heterogeneous Mixtures, as occaſion Coruſcations, Meteors, Thunder, Lightning, Contagions, and Peſtilential Infections, in our preſent Air; and have ſo very pernicious and fatal (tho' ſometimes almoſt inſenſible) effects in the World ſince the Deluge.

This is the natural Conſequent, or rather Original, of the before-mention'd Equability and Uniformity of the Antediluvian Air: This muſt be ſuppos'd on the account of the *Longævity* of the Inhabitants: And this is very agreeable to the laſt cited Deſcriptions of the Golden Age. The contrary Heterogeneous and Groſs Atmoſphere,

-which now encompaſſes the Earth, is diſagreeablee to a regular State, (which an original Formation from the Chaos ſuppoſes,) as containing ſuch denſe and bulky Exhalations, and Maſſes, which at firſt muſt have obtain'd a lower Situation, and were not to be ſuſtain'd by the primitive thin and ſubtle Air or *Æther*. Such Mixtures as this Propoſition takes notice of, or thoſe Effects of them therein mention'd, have no Footſteps in Sacred or Prophane Antiquity, relating to the firſt Ages of the World; there is no appearance of them in the Serene and Pellucid Air of the Moon, or of the Generality of the Heavenly Bodies, and ſo there can be little reaſon to aſcribe them to the *Antediluvian* ſtate.

XL. The Antediluvian Air had no large, groſs Maſſes of Vapours, or Clouds, hanging for long Seaſons in the ſame. It had no great round Drops of Rain, deſcending in Multitudes together, which we call Showers: But the Ground was watered by gentle Miſts or Vapours aſcending in the day, and deſcending in great meaſure again in the ſucceeding Night. *

* Vid. Hugen. verba ad Phænom. 45. citanda.

This Aſſertion is but a proper Conſequent of ſuch a pure, thin, rare *Æther* as originally encompaſs'd the Earth. 'Tis very agreeable to the Deſcriptions of the Golden Age, and to the preſent *Phænomena* of moſt of the Planets (eſpecially of the Moon, whoſe Face, tho' ſo near us, is never obſcur'd or clouded from us.) 'Tis neceſſary to be ſuppos'd in an Air without a Rainbow, as the Antediluvian was; (of which preſently;) and is indeed no other than the Words of the Sacred Hiſtory informs us of.

Theo-. l. 2. c. 1.

The

The Lord God had not cauſed it to rain upon the Earth, ——— *But there went up a Miſt from the Earth, and watered the whole Face of the Ground.* Gen. ii. 5, 6.

The Clouds indeed are mention'd by Wiſdom in the Book of *Proverbs* as Coeval with the Creation, which ſeems to contradict this *Phænomenon.* But if we conſider that in the firſt Conſtitution of the Expanſum or Firmament on the 2d Day of the Hexaemeron there would be Clouds, and thoſe probably thicker and denſer than ever ſince; and that during the greateſt part of 9 or 10 Months Space together, tho' after the clearing up of the Air on the fourth Day they would return no more, as will be eaſily underſtood hereafter, It will appear that the preſent *Phænomenon*, in the juſt Senſe here intended, is ſtill very true, and not at all diſagreeable to the Sacred Scriptures. Prov. viii 28.

XLI. The Antediluvian Air was free from violent Winds, Storms, and Agitations, with all their Effects on the Earth or Seas, which we cannot now but be ſufficiently ſenſible of.

This the foregoing *Phænomena* enforce: So homogeneous, pure, and unmix'd a Fluid, as that Air has been deſcrib'd to have been, by no means ſeeming capable of exciting in it ſelf, or undergoing any ſuch diſorderly Commotions or Fermentations. Where no Vapours were collected into Clouds, there muſt have been no Winds to collect them; where the Climates preſerv'd their own proper temperature, no Storms muſt have hurried the Air from colder to hotter, or from hotter to colder Regions; where was no Rainbow, there muſt have been no driving together the ſeparate Vapours into larger *Globules* or round Drops of Rain, the immediate requi-

Vid. Phænom. 55. infra.

ſite thereto. This is alſo highly probable by reaſon of the perpetual tranquillity of the Air for the firſt five entire Months of the Deluge, (as will be prov'd anon,) which is ſcarce ſuppoſable if Storms and Tempeſts were uſual before.

XLII. The Antediluvian Air had no Rainbow; as the preſent ſo frequently has.

Gen. ix. 12, 13, 14, 15, 16, 17. *Vid.* Theo. l. 2. c. 5.

God ſaid, (after the Deluge) *This is the token of the Covenant which I make between me and you, and every living Creature that is with you, for perpetual Generations. I do ſet my Bow in the Cloud; and it ſhall be for a Token of a Covenant between me and the Earth. And it ſhall come to paſs when I bring a Cloud over the Earth, that the Bow ſhall be ſeen in the Cloud. And I will remember my Covenant, which is between me and you, and every living Creature of all Fleſh; and the Waters ſhall no more become a Flood to deſtroy all Fleſh. And the Bow ſhall be in the Cloud, and I will look upon it, that I may remember the everlaſting Covenant between God and every living Creature of all Fleſh that is upon the Earth. And God ſaid unto Noah, This is the Token of the Covenant, which I have eſtabliſh'd between me and all Fleſh that is upon the Earth.*

XLIII. The Antediluvians might only eat Vegetables; but the Uſe of Fleſh after the Flood was freely allow'd alſo.

Gen. i. 29, 30.

God ſaid, (to our firſt Parents in Paradiſe) *Behold I have given you every Herb, bearing Seed, which is upon the face of all the Earth; and every Tree, in the which is the Fruit of a Tree yielding Seed, to you it ſhall be for Meat; and to every beaſt of the Earth, and to every Fowl of the Air, and to every thing that creepeth upon the Earth wherein there is life;*

life; I have given every green Herb for Meat: And it was ſo.

God bleſſed Noah and his Sons, (after the Flood) *and ſaid unto them, Be fruitful and multiply, and repleniſh the Earth. And the fear of you, and the dread of you ſhall be upon every Beaſt of the Earth, and upon every Fowl of the Air, upon all that moveth upon the Earth, and upon all the Fiſhes of the Sea; into your hand are they deliver'd. Every moving thing that liveth ſhall be Meat for you; even as the green Herb have I given you all things.* To which when the Prince of *Latin* Poets ſo exactly agrees, let us for once hear him in the preſent caſe. Chap. ix. 1, 2, 3.

Ante etiam ſceptrum Dictæi Regis, & anté
Impia quàm cæſis gens eſt epulata juvencis,
Aureus hanc vitam in terris Saturnus agebat. Virgil. Geor. lib. 2. ſub calce.

XLIV. The Lives of the Antediluvians were more univerſally equal, and vaſtly longer than ours now are: Men before the Flood frequently approaching near to a thouſand, which almoſt none now do to a hundred Years of Age.

This is both fully atteſted by the moſt ancient Remainders of prophane Antiquity, and will be put paſt doubt hereafter by a Table of the Ages of the Antediluvians, out of the fifth Chapter of *Geneſis*. *Semotique priùs tarda neceſſitas Leti corripuit gradum.* Grot. ubi ſupra. Theor. l. 2. c. 3. Hor. Ode 3.

XLV. Though the Antediluvian Earth was not deſtitute of leſſer Seas and Lakes, every where diſpers'd on the Surface thereof; yet had it no *Ocean*, or large receptacle of Waters, ſeparating one

Continent from another, and covering ſo large a portion of it, as the preſent Earth has. (*b*)

Vid. etiam Coroll. 2. Solut. 7. infra. Archæol. p. 241. Theor. l. 1, c 6.

This is evident, Becauſe (1.) the Number of the Antediluvians before aſſign'd, muſt have been too numerous for the Continents alone to maintain. (2.) That famous Tradition among the Ancients of the drowning a certain vaſt Continent call'd *Atlantis*, bigger than *Africa* and *Aſia*, ſeems to be a kind of Relique of the Generation of the Ocean at the Deluge, and conſequently of that Antediluvian State, where the greateſt part of what the Ocean now poſſeſſes was dry Land, and inhabited as well as the reſt of the Globe. (3.) The Generation of the Ocean, with the Situation of the preſent great Continents of the Earth will be ſo naturally and exactly accounted for at the Deluge, that when that is underſtood there will remain to thoſe who are ſatisfied with the other Concluſions, ſmall reaſon to doubt of the Truth of this before us. (4.) The Teſtimony of *Joſephus* (if the *Theoriſt* hit upon his true Senſe) is agreeable, who ſays, At the Deluge God Εἰς θάλασσαν τὴν ἤπειρον μετέβαλε; *chang'd the Continent into Sea.*

Theor. l. 2. c. 10. p. 280.

(*b*) Nam neque apud nos niſi ſumma maris ſuperficie ac tenui veluti pellicula opus eſſet ad humorem terris ſatiſque ſuppeditandum quem ſolis vis elicuiſſet; quique in rorem tantum, non vero in nubes condenſaretur, *Hugan. Coſmotheor. p.* 117.

CHAP. IV.

Phænomena *relating to the Univerſal Deluge, and its Effects upon the Earth.*

XLVI. IN the Sixteenth or Seventeenth Century from the Creation, there happen'd a moſt extraordinary and prodigious Deluge of Waters upon the Earth.

This general Aſſertion is not only atteſted by a large and ſpecial Account of it in the Sacred Writings, but by the univerſal Conſent of the moſt ancient Records of all Nations beſides, as may be ſeen in the Authors quoted in the Margin; and is put moreover paſt doubt by Dr. *Woodward*'s Natural Obſervations *.

Grot. ubi ſupra. Bp. *Stillingfleet*'s Orig. l. 3. c. 4. *Edward*'s Authority of Scrip. p. 118, &c. And Commentators on Gen. 6, and 7.

XLVII. This prodigious Deluge of Waters was in part occaſion'd by a moſt extraordinary and violent Rain, for the ſpace of forty Days, and as many Nights, without Intermiſſion.

* Eſſay, Pref and Part 3. Sect. 2.

Yet ſeven Days, and I will cauſe it to rain upon the Earth forty Days and forty Nights. Gen. vij 4.

The Windows of heaven were opened, and the rain was upon the Earth forty Days and forty Nights. Verſe 11, 12.

And the Flood was forty Days upon the Earth. Verſe 17.

XLVIII. This vaſt quantity of Waters was not deriv'd from the Earth or Seas, as Rains conſtantly now are; but from ſome other Superior and Cœleſtial Original.

This is evident, Becauſe (1.) the Antediluvian Air (as was before prov'd,) never retain'd great

Quantities of Vapours, or ſuſtained any Clouds capable of producing ſuch conſiderable, and ſo laſting a Rain, as this moſt certainly was. (2.) The Quantity of Waters on the *Antediluvian* Earth, where there was no Ocean, (as we ſaw juſt now) was very ſmall in compariſon of that at preſent, and ſo could contribute very little towards the Deluge. (3.) If the Quantity of Waters on the Face of the Earth had then been as great as now, and had all been elevated into Vapours and deſcended on the dry Land alone, it were much too ſmall to cauſe ſuch a Deluge as this was. (4.) But becauſe, if the Waters were all rais'd into Vapours, and deſcended into Rain, they muſt either fall upon, or run down into the Ocean, the Seas, and thoſe Declivities they were in before, They could only take up and poſſeſs their old places; They therefore could not contribute a jot to that ſtanding and permanent Maſs of Waters which cover'd the Earth at the Deluge. (5.) The Expreſſion us'd by the Sacred Hiſtorian, that the *Windows*, *Flood-gates*, or *Cataracts* of Heaven were open'd at the firſt falling, and ſhut at the ceaſing of theſe Waters, very naturally agrees to this Superior and Cœleſtial Original.

Vid. Th. l. 1, c. 2.

Gen. vii. 11. And viii. 2.

XLIX. This vaſt fall of Waters, or Forty Days rain, began either on the ſixth Day of the Week, or *Friday* the twenty eighth day of *November*, according to the preſent *Hebrew* Chronology; or on *Monday December* 2d according to the exacter Chronology, being the ſeventeenth Day of the ſecond Month from the *Autumnal Equinox*.

Gen. vii. 11. *In the ſix hundredth Year of* Noah's *Life, in the ſecond Month, the ſeventeenth Day of the Month, the Windows of Heaven were opened, and the Rain was upon the Earth forty Days and forty Nights.* Thus

Thus *Abydenus* and *Beroſus* ſay it began on the fifteenth Day of *Deſius*, the ſecond Month from the *Vernal Equinox*; which, if the miſtake, ariſing 'tis probable from the ignorance of the change in the beginning of the Year at the *Exodus* out of *Egypt*, or perhaps from the Copyers alone, by putting *Deſius* inſtead of *Dius* which was the ſecond Month from the Autumnal Equinox, be but corrected, is within a Day or two agreeable to the Narration of *Moſes*, and ſo exceedingly confirms the ſame. Thus alſo, what is ſtill more remarkable, *Plutarch* tells us that *Oſiris*, or *Noah* went into the Ark exactly on the 17th Day of the Month *Athyr*, in which the Sun paſſes through the Sign *Scorpius*, or the very ſame 17th Day of the ſecond Month from the Autumnal Equinox which we here aſſign, and which the Sacred Hiſtory aſſerts; as we have already ſeen.

Langiùs de annis Chriſti, p. 255.

P. 124, 125. prius.

L. The other main Cauſe of the Deluge, was the breaking up the Fountains of the great *Abyſs*, or the cauſing of ſuch Chaps and Fiſſures in the upper Earth, as might permit the Waters contain'd in the Bowels of it, when violently preſs'd and ſqueez'd upwards, to aſcend, and ſo add to the quantity of thoſe which the Rains produced.

All the Fountains of the great deep were broken up. Gen. vii. 11.

LI. All theſe Fountains of the great Deep were broken up on the very firſt Day of the Deluge; or the very firſt Day when the Rains began.

In the ſix hundredth Year of Noah's *Life, in the ſecond Month, the ſeventeenth Day of the Month, the ſame Day were all the Fountains of the great Deep* Gen. vii. 11.

broken

broken up, and the W
opened.

LII. Yet the very
Family, and all the
Ark.

Gen. vij. 13, 14. *In the ſelf-ſame Day* Noah, *and* Shem, *and* *Sons of* Noah, *and* No *Wives of his Sons with th* *every Beaſt after his kin* *their kind, and every creep* *the Earth after his kind* *kind, every Bird of ever*

LIII. The Waters creas'd by degrees fi moſt height; and the ſtill longer till they the face of the Earth

This is evident from of the *Moſaick* Hiſtory, Chapters of *Geneſis*.

LIV. The Water Still, Calm, free from Winds, and Tempeſt whole time in which them.

This is evident fro *Ark*'s abiding a ſtormy Bulk, and particular F was three hundred broad, and thirty Cu cording to the moſt the Cubits Length, by Lord Biſhop of *Peterb*

Gen. vi. 15.

the Windows of Heaven were

very ſame Day, *Noah*, his
the Animals entred into the

e Day, laſt mention'd, *entred*
n, *and* Ham, *and* Japheth, *the*
nd Noah's *Wife, and the three*
with them into the Ark : They, and
his kind, and all the Cattle after
ry creeping thing that creepeth upon
is kind, and every Fowl after his
of every ſort.

Waters of the Deluge in-
ees five Months till their ut-
nd then decreas'd by degrees
they were clearly gone off
Earth.

t from the entire *Series* and courſe
iſtory, in the ſeventh and eighth
eſis.

Waters of the Deluge were
e from Commotions, Storms,
mpeſts of all ſorts, during the
which the *Ark* was afloat upon

nt from the Impoſſibility of the
tormy Sea, conſidering the vaſt
ular Figure of it. For ſince it
lred Cubits long, fifty Cubits
ty Cubits high ; which is, ac-
moſt accurate Determination of
th, by the Right Reverend the
Peterborough, above five hundred
and

and forty ſeven *Engliſh* Feet long one Feet broad, and near fifty And ſince withal it appears to ha Figure of a Cheſt, without ſuch tom, and Proportion of Parts, as are contrived with; 'tis evident low'd by Perſons skill'd in N 'twas not capable of enduring a muſt, whenever either the Ridg vaſt Waves were ſo ſituate, that the one or the other, have had it and it ſelf muſt have been ſhatt which having not happen'd, 'ti dence of a calm Sea during the w afloat.

LV. Yet during the latter p luge, there was a conſiderable Storms and Tempeſts alſo.

God made a wind to paſs over th waters aſſwaged.

Thou coveredſt the Earth with th garment; the waters ſtood above th thy rebuke they fled; at the voice of haſted away. They go up to the m down by the vallies, unto the place appointed for them.

LVI. This Deluge of Wa verſal in its extent and effect; the parts of the Earth, and de Land-animals on the entire Su thoſe only excepted which we in the Ark.

The following Texts, eſpeci with the thirty fifth foregoing P added to Dr. *Woodward*'s Obſer

et long, above ninety
fifty five Feet high:
to have been of the
ſuch a peculiar Bot-
rts, as our great Ships
vident, and will be al-
in Navigation, that
ing a ſtormy Sea. It
Ridges or Hollows of
, that it lay over croſs
had its back broken,
n ſhatter'd to pieces;
'd, 'tis a certain evi-
the whole time it was

Biſhop *Cumberland's* Weights and Meaſures, p. 34.

atter part of the De-
erable Wind, if not
ſo.

over the Earth, and the Gen. viii. 1.

with the deep, as with a Pſalm civ. 6, 7, 8.
ove the mountains. At
oice of thy thunder they
the mountains; they go
e place which thou haſt

Vid. Philonis deſcriptionem Diluvii apud Burnetium Archæol. p. 236.

f Waters was Uni-
ffect; reaching to all
nd deſtroying all the
tire Surface thereof;
ich were with *Noah*

eſpecially if compar'd
oing *Phænomenon*, and
Obſervatious atteſting
the

Eſſay, Pref. and Part 3. Sect. 2. Vid. Th. l. 1. c. 3.

the ſame thing, will put this Aſſertion beyond rational Exception.

Gen. vi. 13. *God looked upon the earth, and behold it was corrupt; for all fleſh had corrupted his way upon the earth. And God ſaid unto* Noah, *The end of all fleſh is come before me.*

Verſe 17. *Behold, I even I do bring a flood of waters upon the earth, to deſtroy all fleſh, wherein is the breath of life from under heaven: and every thing that is in the earth ſhall die.*

Chap. vii. 4. *Every living ſubſtance that I have made, will I deſtroy from off the face of the earth.*

Verſe 19, 20, 21, 22, 23. *All the high hills that were under the whole heaven were covered.——— And all fleſh died that moved upon the earth, both of fowl, and of cattle, and of beaſt, and of every creeping thing that creepeth upon the Earth, and every man. All in whoſe noſtrils was the breath of life; all that was in the dry land died. And every living ſubſtance was deſtroyed which was upon the face of the ground, both man and cattle, and the creeping thing, and the fowl of the heaven, and they were deſtroyed from the Earth; and* Noah *only remained alive, and they that were with him in the Ark.*

LVII. The Waters at their utmoſt height were fifteen Cubits above the higheſt Mountains, or about 3 Miles above the neighbouring Plains, or 6 Miles above the common Surface of the Earth.

Vid. Varen. Geog. p. 60.

Gen. vii. 16, 20. *All the high hills under the whole heaven were covered. Fifteen cubits upwards did the waters prevail, and the mountains were covered.*

LVIII. Whatever be the height of that *Gordyean* Mountain whereon the *Ark* reſted *Now*; it was *at that time* the higheſt of all

all others, at leaſt in thoſe parts of the World.

This is evident from what has been already obſerv'd, That tho' the utmoſt height of the Waters were fifteen Cubits above the higheſt Mountains, and ſo many hundreds, nay, thouſands above the moſt of them; yet did the Ark reſt on the very firſt day on which the Waters began to diminiſh, more than two Months before the emerging of the tops of the other Mountains; as is evident from the Texts following. Vid. Hypoth. 8. priùs.

The waters prevailed upon the earth (from the ſeventeenth day of the ſecond, to the ſeventeenth day of the ſeventh month) *an hundred and fifty days. And God remembred* Noah, *and all the cattle that was with him in the Ark; and God made a wind to paſs over the earth, and the waters aſſwaged. The fountains alſo of the deep, and the windows of heaven were ſtopped, and the rain from heaven was reſtrained. And the waters returned from off the earth continually, and after the end of the hundred and fifty days the waters were abated. And the Ark reſted in the ſeventh month, on the ſeventeenth day of the month, upon the mountains of* Ararat. *And the waters decreaſed continually until the tenth month: in the tenth month, on the firſt day of the month, were the tops of the mountains ſeen.* Gen. vii. ult. (with verſe 11.) chap. viii. 1,2,3,4,5.

LIX. As the Fountains of the great Deep were broken up at the very beginning of the Deluge, ſo were they ſtopp'd at the end of 150 Days, on the ſeventeenth Day of the ſeventh Month.

The fountains alſo of the deep, and the windows of heaven were ſtopped, and the rain from heaven was reſtrained. Gen. viii. 2.

LX. The

LX. The abatement and decreaſe of the Waters of the Deluge was firſt by a Wind which dried up ſome; And ſecondly, by their deſcent through thoſe Fiſſures, Chaps, and Breaches, (at which part of them had before aſcended) into the Bowels of the Earth, which received the reſt. To which latter alſo the Wind, by hurrying the Waters up and down, and ſo promoting their lighting into the beforemention'd Fiſſures, was very much ſubſervient.

Gen. viii. 1. *God made a wind to paſs over the earth, and the waters aſſwaged.*

Verſe 3. *The waters returned from off the earth continually,* or *going and returning.*

Job xxxviii. 8, 10, 11. *Who ſhut up the ſea with doors, when it brake forth as if it had iſſued out of the womb? ——— When I brake up for it my decreed place, and ſet bars and doors, and ſaid, Hitherto ſhalt thou come, but no further; and here ſhall thy proud waves be ſtayed.*

Pſalm civ. 6, 7, 8, 9, *Thou coveredſt the Earth with the deep, as with a garment: the waters ſtood above the mountains. At thy rebuke they fled: at the voice of thy thunder they haſted away. They went up by the mountains: they went down by the vallies unto the place which thou hadſt appointed for them. Thou haſt ſet a bound that they may not paſs, that they turn not again to cover the earth.*

LXI. The *Antediluvian* Year was, in abſolute ſpace of time, nearly equal to our preſent and Ancient Lunar one, or above 10 Days ſhorter than our preſent Solar Year.

This has been prov'd under the XI. *Hypotheſis* already.

P 193, &c. priùs

LXII. Yet

LXII. Yet the *Antediluvians* had, generally ſpeaking, full 360 Days in their Year.

This has been alſo prov'd in the X. *Hypotheſis* already.

LXIII. The dry Land, or habitable Part of the Globe, is, ſince the Deluge, divided into two vaſt *Continents*, almoſt oppoſite to one another, which, as is moſt probable, are ſeparated by a great Ocean interpos'd between them.

This every Map of the Earth is a ſufficient Proof of.

LXIV. One of theſe *Continents* is conſiderably larger than the other.

This is evident the ſame way with the former.

LXV. The larger *Continent* lies moſt part on the *North-ſide* of the Equator, and the ſmaller, as far as is yet certainly known, moſt part on the *South*.

This (if we take *South-America*, the moſt conſiderable and entire Branch of the whole, for the *Continent* here referr'd to, as 'tis reaſonable to do) is alſo evident the ſame way with the former.

LXVI. The Middle or Center of the *North-Continent*, between the utmoſt bounds, *North* and *South*, *Eaſt* and *Weſt*, is about ſixteen or eighteen degrees of *Northern* Latitude; and that of the *South* about ſixteen or eighteen degrees of *Southern* Latitude.

This

This may ſoon be found by meaſuring the Boundaries of the ſeveral *Continents* on a Globe or Map, and obſerving the Poſition of their Centers.

LXVII. The diſtance between the *Continents*, meaſuring from the larger or *Northern South-Eaſtward*, is greater than that the contrary way, or *South-Weſtward*.

This is evident by the like means with the former: It being farther from *China*, or the *Eaſt-Indies* to *America* going forward *South-Eaſt*, than from *Europe* or *Africa* going thither *South-Weſt*.

LXVIII. Neither of the *Continents* is terminated by a round or even circular Circumference: But mighty Creeks, Bays, and Seas running into them; and as mighty Peninſula's, Promontories, and Rocks jetting out from them, render the whole very unequal and irregular.

This none who ever ſaw a Globe or Map of the World can be ignorant of.

LXIX. The depth of that *Ocean* which ſeparates theſe two *Continents* is uſually greateſt fartheſt from, and leaſt neareſt to either of the ſame *Continents*; there being a gradual deſcent from the *Continents* to the middle of the *Ocean*; which is the deepeſt of all.

This is a Propoſition very well known in Navigation; and in ſeveral Sea-*Charts* relating thereto, may eaſily be obſerv'd.

LXX.

LXX. The greateſt part of the *Iſlands* of the Globe are ſituate at ſmall diſtances from the Edges of the great *Continents*; very few appearing near the middle of the main *Ocean*.

This the bare Inſpection into a Map or Globe of the World will ſoon give Satisfaction in.

LXXI. The Ages of Men decreas'd about one half preſently after the Deluge; and in the ſucceeding 1300 Years were gradually reduced to that ſtandard at which they have ſtood ever ſince.

This the following Tables will easily evince.

Ages of the *Antediluvians* in their Years: According to the *Samaritan*.		Ages of the *Postdiluvians* in the present Years.		
Adam	930	*Sem*	600	Gen. x. 10, 11
Seth	912	*Arphaxad*	438	12, 13.
Enos	905	*Salah*	433	14, 15.
Cainan	910	*Heber*	404	16, 17.
Mahalaleel	895	*Phaleg*	239	18, 19,
Jared	847	*Reu*	239	20, 21.
Enoch (translated)	365	*Serug*	230	22, 23.
Methuselah	720	*Nahor*	148	24, 25.
Lamech	653	*Terah*	145	32.
Noah	950	*Abraham*	175	xxv. 7.
Sem	600	*Sarah*	127	xxiii.
		Isaac	180	xxxv. 28.
		Ismael	137	xxv. 17.
		Jacob	147	xlvii. 28
		Joseph	110	l 26.
		Levi	137	Ex. vi. 16.
		Kohath	133	18.
		Hesron about	133	Job i. 1.4.
		Job about	180	& xlii. 16.
		Amram	137	18.
		Segub about	137	Ex. vi. 20.
		Izhar about	137	
		Pallu about	137	
		Jocebede about	137	
		Miriam about	130	
		Aaron	123	Num. xxxiii.
		Moses	120	39.
		Corah	125	Deut. xxxiv.
		Dathan	125	7.
		Abiram	125	
		Joshua	110	
		Rahab about	135	Jos. xxiv. 29.
		Booz about	125	
		Obed about	110	
		Eli	98	1 Sam. iv.
		Jesse about	85	15.
		Barzillai above	80	2 Sam. xix.
		David	70	32. v. 4.

For the rest, vide *Usser.* Chron. Sac. *Cap.* 8, and 12. & Annal. *A. M.* 2552.

LXXII. Our upper Earth, for a conſiderable depth, even as far as we commonly penetrate into it, is *Factitious*, or newly acquir'd at the Deluge: The ancient one having been covered by freſh *Strata* or *Layers* of Earth at that time, and thereby ſpoil'd or deſtroy'd as to the uſe and advantage of Mankind.

I will deſtroy them with the Earth. Gen. vi. 13.

Neither ſhall there any more be a Flood, Διαφθεῖραι, *to deſtroy*, corrupt, or ſpoil *the Earth.* and ix. 11.

This is moreover evident by the vaſt numbers of the Shells of Fiſh, Bones of Animals, Entire or Partial Vegetables, and other very ſtrange things buried at the Deluge, and encloſed in the Bowels of the preſent Earth, and of its moſt ſolid and compacted Bodies, to be commonly ſeen at this Day. Thus particularly we find both in Dr. *Plott*, and the Philoſophical Tranſactions, a ſtrange Paſſage relating to *Switzerland*. Take the Account in Dr. *Plott*'s own Words, *Hiſt. of Staff. Chap.* 2. *Sect.* 71, 'Many Heterogeneous Bodies 'belonging to the Sea —— are many times found 'by digging in the Bowels of the Earth. Such 'was the Maſt, the Ingenious Author of *Mercurius Centralis* mentions, dug out of the Top of 'an high Hill in *Greenland*, with a Pully hanging to it. But the moſt prodigious Story we 'have of this kind is that of *Baptiſta Fulgoſus*, *Ludovicus Moſcardus*, and *Theodorus Moretus*, who 'tells us that at the Village of *Bern* in *Switzerland*, '*Anno* 1460, in a Mine 50 Fathoms deep, there 'was dug up a whole Ship with its Anchors and 'broken Maſts, in which were the Carcaſſes of '40 Mariners, together with their Merchandiſe: 'which *Fulgoſus* more particularly tells us as a Philoſ. Tranſ. N. 77.

'thing done in his own time, and ſeen by many 'grave and ſober Men, from whom (*qui in re preſen-* 'tes *fuere*,) he ſays he receiv'd a perſonal Account 'of it." And what mighty Fiſh-Bones are found when the Mountain tops are waſh'd down in *Tartaria*, I had rather the Reader ſhould be inform'd by his Excellency the *Muſcovite Ambaſſador* himſelf, who travell'd in thoſe Regions, than by any Account of my own from him. See *Ysbrants Ides's* Travels from *Moſcow* to *China*, Pag. 25, 26. And this *Phænomenon* is fully atteſted not only by very many occaſional Remarks of others, but more eſpecially by the careful and numerous Obſervations of an Eye-witneſs, the Learned Dr. *Woodward*. 'Tis true, this excellent Author was forc'd to imagine, and accordingly to aſſert, That the Ancient Earth was diſſolv'd at the Deluge, and all its Parts ſeparated from one another; and ſo the whole, thus diſſolv'd and ſeparated, taken up into the Waters which then cover'd the Earth; till at laſt they together ſettled downward, and with the fore-mentioned Shells, Bones, and Vegetables, incloſed among the reſt of the Maſs, compos'd again that Earth on which we now live. But this Hypotheſis is ſo ſtrange, and ſo miraculous in all its Parts; 'tis ſo wholly different from the natural Series of the *Moſaick* Hiſtory of the Deluge; takes ſo little notice of the *opening the Windows of Heaven*, and the thence deriv'd forty Days Rain, the principal cauſe thereof; is ſo contrary to the Univerſal Law of mutual Attraction, and the ſpecifick Gravities of Bodies; accounts for ſo few of the before-mention'd *Phænomena* of the Deluge; fixes the time of the Year for its commencing ſo different from the Truth; implies ſuch a ſort of new Formation or Creation of the Earth at the Deluge, without Warrant for

Eſſay, paſſim.

the

the ſame ; is in ſome things ſo little conſiſtent with the *Moſaick* Relation, and the *Phænomena* of Nature; and upon the whole is ſo much more than his Obſervations require, or will warrant, that I cannot but diſſent from this particular Hypotheſis, tho' I ſo juſtly honour the *Author*, and ſo highly eſteem, and frequently refer to the *Work* it ſelf. All that I ſhall ſay farther is this, That the *Phænomena* of the *interior* Parts of the Earth, by this *Author* ſo exactly obſerv'd, are on the common Grounds or Notions of the Deluge, (which ſuppoſe the Waters to have been pure, without any other Mixtures) ſo unaccountable, and yet ſo remarkable and evident, that if no other rational Solution could be offer'd, 'twere but juſt and neceſſary to admit whatever is aſſerted by this *Author*, rather than deny the Reality of thoſe *Phænomena* or aſcribe the plaineſt Remains of the Animal and Vegetable Kingdom to the ſportings of Nature, or any ſuch odd and *Chimerical* Occaſions, as ſome Perſons are inclinable to do. But withal, I muſt be allow'd to ſay, and the *Author* himſelf will not diſagree, That his *Hypotheſis* includes things ſo ſtrange, wonderful, and ſurprizing, that nothing but the utmoſt Neceſſity, and the perfect unaccountableneſs of the *Phænomena* without it, ought to be eſteem'd ſufficient to juſtify the Belief and Introduction of it. Which ſtraits that Account of the Deluge we are now upon, not forcing me into, as will appear hereafter ; I have, I think, but juſt Reaſons for my Disbelief thereof; and as juſt, or rather the ſame Reaſons to embrace that Aſſertion we are now upon, That this upper Earth, as far as any Shells, Bones, or Vegetables are found therein, was *adventitious*, and newly acquir'd at the Deluge, and not only the old one diſſolv'd, and reſettled in its ancient place again.

Eſſay, p. 82.

LXXIII. This *Factitious Cruſt* is univerſal, upon the Tops of the generality of Mountains, as well as in Plains and Vallies; and that in all the known Climates and Regions of the World.

Eſſay, p. 5, 6, 7. This is fully atteſted by the Obſervations of the ſame *Author*, and thoſe which he procur'd from all parts of the World conſpiring together.

LXXIV. The Parts of the preſent upper *Strata* were, at the time of the Waters covering the Earth, looſe, ſeparate, and divided; and ſo floated in the Waters among one another uncertainly.

Pref. and p. 74. This is proved by the ſame *Author's* Obſervations.

LXXV. All this Heterogeneous Maſs, thus floating in the Waters, by degrees deſcended downwards, and ſubſided to the bottom, pretty nearly according to the Law of Specifick Gravity; and there compos'd thoſe ſeveral *Strata* or *Layers*, of which our preſent upper Earth does conſiſt.

P. 75. This is prov'd by the ſame Obſervations.

LXXVI. Vaſt multitudes of Fiſhes belonging both to the Seas and Rivers, periſh'd at the Deluge; and their Shells were buried among the other Bodies or Maſſes which ſubſided down, and compos'd the *Layers* of our upper Earth.

P. 75, 76, 77. This is prov'd by the ſame Obſervations.

LXXVII. The ſame Law of Specifick Gravity which was obſerv'd in the reſt of the Maſs

Maſs, was alſo obſerv'd in the ſubſidence of the Shells of Fiſhes; they then in the main ſinking together with, and accordingly being now found enclos'd among thoſe *Strata* or Bodies which are nearly of their own ſeveral Specifick Gravities: The heavier Shells being conſequently ſtill encloſed among the heavier *Strata*, and the lighter Shells among the lighter *Strata*, in the Bowels of our preſent Eatth.

This is prov'd by the ſame Obſervations. P. 75, 76, 77.

LXXVIII. The *Strata* of *Marble*, of *Stone*, and of all other ſolid Bodies, attained their ſolidity, as ſoon as the *Sand*, or oth[illegible]natter whereof they conſiſt, was arriv'd at the bottom, and well ſettled there. And all thoſe *Strata* which are ſolid at this Day, have been ſo ever ſince that time.

This is prov'd by the ſame Obſervations. Pag. 79.

LXXIX. Theſe *Strata of Stone*, of *Chalk*, of *Coal*, of *Earth*, or whatever matter they conſiſted of lying thus each upon other, appear now as if they had at firſt been parallel, continued, and not interrupted: But as if, after ſome time they had been diſlocated and broken on all Sides of the Globe, had been elevated in ſome, and depreſs'd in other places; from whence the Fiſſures and Breaches, the Caverns and *Grotto's*, with many other Irregularities within and upon our preſent Earth, ſeem to be deriv'd.

This is prov'd by the ſame Obſervations. P. 79, 80, 81.

LXXX. Great numbers of Trees, and of other Vegetables were alſo, at this ſubſidence of the Maſs aforeſaid, buried in the Bowels of the Earth: And ſuch very often as will not grow in the places where they are now lodg'd: Many of which are pretty entire and perfect, and to be diſtinctly ſeen and conſider'd to this very Day.

P.77,78, 113. This is prov'd by the ſame Obſervations.

LXXXI. It appears from all the tokens and circumſtances which are ſtill obſervable about them, That all theſe Vegetables were torn away from their ancient Seats in the Spring time, in or about the Month of *May*. But then this muſt be reſtrain'd to the Vegetables found in theſe *Northern* Climates; for otherwiſe, 'tis always all Seaſons to one place of the Earth or other. Otherwiſe we ſhould have loſt a great part of the *Antediluvian* Plants, even all thoſe whoſe Seeds were not ripe at the time when they were born away into the Water.

P.274, 275. This is prov'd by the ſame Obſervations.

LXXXII. All the *Metals* and *Minerals* among the *Strata* of our upper Earth owe their preſent Frame and Order to the Deluge; being repoſed therein during the time of the Waters covering the Earth, or during the ſubſidence of the before-mention'd Maſs.

P. 179, 180. This is prov'd by the ſame Obſervations.

LXXXIII.

LXXXIII. Theſe *Metals* and *Minerals* appear differently in the Earth, according to the different manner of their firſt lodgment: For ſometimes they are in looſe and ſmall Particles, uncertainly inclos'd among ſuch Maſſes as they chanc'd to fall down withal: At other times ſome of their Corpuſcles happening to occur and meet together, affix'd to each other; and ſeveral convening, uniting, and combining into one Maſs, form'd thoſe *Metallick* and *Mineral Balls* or *Nodules* which are now found in the Earth: And according as the Corpuſcles chanc'd to be all of a kind or otherwiſe, ſo the Maſſes were more or leſs ſimple, pure, and Homogeneous. And according as other Bodies, Bones, Teeth, Shells of Fiſh, or the like, happen'd to come in their way, theſe *Metallick* and *Mineral* Corpuſcles affix'd to and became conjoin'd with them; either within, where it was poſſible, in their hollows and interſtices; or without, on their ſurface and outſides, filling the one, or covering the other: And all this in different degrees and proportions, according to the different Circumſtances of each individual caſe.

All this is prov'd by the ſame Obſervations. P. 179, &c

LXXXIV. The inward parts of the preſent Earth are very irregular and confuſed. One Region is chiefly *Stony*, another *Sandy*, a third *Gravelly*. One Country contains ſome certain kinds of *Metals* or *Minerals*, another

another quite different ones. Nay, the ſame lump or maſs of Earth not ſeldom contains the Corpuſcles of ſeveral *Metals* or *Minerals*, confuſedly intermix'd with one another, and with its own earthy parts. All which Irregularities, with ſeveral others that might be obſerv'd, even contrary to the Law of Specifick Gravity in the placing of the different *Strata* of the Earth, demonſtrate the Original *Fund* or *Promptuary* of all this upper factitious Earth to have been in a very Wild, Confus'd, and *Chaotick* Condition.

Eſſay, paſſim & p. 170, &c. Varen. Geogr. I. 1. c. 7. Prop. 7.

All this the fore-mention'd, and all other Obſervations of the like nature fully prove.

LXXXV. The uppermoſt and lighteſt *Stratum* of Soil or *Garden Mould*, as 'tis call'd; which is the proper Seminary of the Vegetable Kingdom, is ſince the Deluge very thick ſpread uſually in the Valleys and Plains, but very thin on the Ridges or Tops of Mountains; which laſt, for want thereof are frequently Stony, Rocky, Bare and Barren.

This eaſy Obſervations of the Surface of the Earth in different places will quickly ſatisfy us of.

LXXXVI. Of the four ancient Rivers of Paradiſe there are ſtill two remaining, tho' not exactly in the Old Channels; but the other two are ſo utterly loſt, that the *Moſaick* Deſcription does not at all agree to them at preſent.

This

This the multitude of unſatisfactory attempts to diſcover all theſe Rivers, and their courſes; with an impartial compariſon of the Sacred Hiſtory with the beſt Geographical Deſcriptions of the Regions about *Meſopotamia* and *Babylon*, will eaſily convince an unbiaſs'd Perſon of. Gen. ii. 10, 11, 12 13, 14.

LXXXVII. Thoſe *Metals* and *Minerals* which the *Moſaick* Deſcription of Paradiſe, and its bordering Regions takes ſuch particular notice of, and the Prophets ſo emphatically refer to, are not now met with ſo plentifully therein. Gen. ii. 10, 11, 12, 13, 14. Ezek. xxviii. 13. Apoc. xxi. 18, 19, 20. with xxii. 2.

This muſt be allow'd on the ſame grounds with the former.

LXXXVIII. This Deluge of Waters was a ſignal Inſtance of the Divine Vengeance on a wicked World; and was the effect of the peculiar and extraordinary Providence of God.

God ſaw that the wickedneſs of Man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually. And it repented the Lord that he had made man on the earth, and it grieved him at his heart. And the Lord ſaid, I will deſtroy man whom I have created from the face of the earth; both man and beaſt, and the creeping thing, and the fowls of the air; for it repenteth me that I have made them. Gen. vi. 5, 6, 7. Ver. 11.

The earth was corrupt before God, aud the earth was filled with violence, and God looked upon the earth, and behold it was corrupt; for all fleſh had corrupted his way upon the earth. And God ſaid unto Noah, the end of all fleſh is come before me, for the earth is filled with violence through them; and behold I will deſtroy them, with the earth. 12, 13.

Behold

Ver. 17. *Behold I, even I, do bring a flood of waters upon the earth, to deſtroy all fleſh wherein is the breath of life from under heaven; and every thing that is in the earth ſhall die.*

2 Pet. ii. 5. *God ſpared not the old world, but ſaved* Noah, *the eighth perſon, a preacher of righteouſneſs; bringing in the flood upon the world of the ungodly.*

LXXXIX. Since the Deluge, there neither has been, nor will be, any great and general Changes in the State of the World, till that time when a Period is to be put to the preſent Courſe of Nature.

Gen. viii. 21, 22. *The Lord ſmelled a ſweet ſavour, and the Lord ſaid in his heart, I will not again curſe the ground any more for mans ſake; for* (or altho') *the imagination of man's heart is evil from his youth: Neither will I again ſmite any more every thing living as I have done. While the earth remaineth, ſeed-time and harveſt, cold and heat, and ſummer and winter, and day and night ſhall not ceaſe.*

And this, as to the time paſt, is abundantly confirm'd by all the Ancient Hiſtory and Geography compar'd with the Modern; as is in ſeveral Particulars well obſerv'd by Dr. *Woodward*, againſt the groundleſs opinions of ſome others to the contrary.

Eſſay, part 1. & 5.

CHAP.

CHAP. V.

Phænomena *relating to the General Conflagration. With Conjectures pertaining to the ſame, and to the ſucceeding Period till the Conſummation of all things.*

XC. AS the World once periſhed by Water, ſo it muſt by Fire at the Concluſion of its preſent State.

The heavens and the earth which are now, by the word of God are kept in ſtore, reſerved unto fire, againſt the day of judgment, and perdition of ungodly men. 2 Pet. iii. 7.

The heavens ſhall paſs away with a great noiſe, and the elements ſhall melt with fervent heat; the earth alſo, and the works that are therein, ſhall be burnt up. Verſe 10.

In the day of God the heavens, being on fire, ſhall be diſſolved, and the elements ſhall melt with fervent heat. Verſe 12

But this is ſo fully atteſted by the unanimous conſent of both Sacred and Prophane Authority, that I ſhall omit other particular Quotations; only refer the Reader where he may have more ample ſatisfaction. Dr. *Hacwell's* Apology of the Power and *Providence* of God. l. 4. c. 13. Theor. l. 3. c. 3.

Scholium. Having proceeded thus far upon more certain Grounds, and generally allow'd Teſtimonies, as to the moſt of the foregoing *Phænomena*; I might here break off, and leave the following *Conjectures* to the ſame State of Uncertainty they have hitherto been in. But being willing

willing to comply with the Title, and take in *all* the great and general Changes from firſt to laſt; from the primogenial *Chaos*, to the *Conſummation* of all things: Being alſo loth to deſert my third *Poſtulatum*, and omit the account of thoſe things which were moſt exactly agreeable to the obvious and literal Senſe of Scripture, and fully conſonant to Reaſon and Philoſophy: Being, laſtly, willing, however, to demonſtrate, that tho' theſe moſt remote and difficult Texts be taken according to the greateſt ſtrictneſs of the Letter, yet do they contain nothing but what is poſſible, credible, and rationally accountable from the moſt undoubted Principels of Philoſophy: On all theſe accounts, I ſhall venture to enumerate, and afterward to account for the following *Conjectures*. In which I do not pretend to be Dogmatical and Poſitive; nay, nor to declare any firm belief of the ſame, but ſhall only propoſe them as *Conjectures*, and leave them to the free and impartial conſideration of the Reader.

XCI. The ſame Cauſes which will ſet the World on Fire, will alſo cauſe great and dreadful *Tides* in the *Seas*, and in the *Ocean*; with no leſs Agitations, Concuſſions, and *Earthquakes* in the *Air* and *Earth*.

Mat. xxiv. 29. *The Powers of Heaven ſhall be ſhaken.*

Joel iii. 16. *The Lord ſhall roar out of Sion, and utter his voice from Jeruſalem, and the heavens and the earth ſhall ſhake.*

Luke xxi, 25, 26. Vid. Theor. l. 3. c. 11. *The ſea and the waves roaring: Mens hearts failing them for fear, and for looking after thoſe things which are coming on the Earth; for the powers of heaven ſhall be ſhaken.*

XCII.

XCII. The *Atmoſphere* of the Earth, before the Conflagration begin, will be oppreſs'd with *Meteors*, *Exhalations*, and *Steams*; and theſe in ſo dreadful a manner, in ſuch prodigious quantities, and with ſuch wild confuſed Motions and Agitations, that the *Sun* and *Moon* will have the moſt frightful and hideous countenances, and their ancient ſplendor will be entirely obſcur'd; the *Stars* will ſeem to fall from Heaven; and all manner of horrid Repreſentations will terrify the Inhabitants of the Earth.

I will ſhew wonders in the Heavens and in the Earth; Blood, and Fire, and Pillars of Smoak. The Sun ſhall be turned into Darkneſs, and the Moon into Blood, before the great and terrible Day of the Lord come. Joel ii. 30, 31.

The Sun ſhall be darkened, and the Moon ſhall not give her Light, and the Stars ſhall fall from Heaven, and the Powers of Heaven ſhall be ſhaken. Mat. xxiv. 29.

There ſhall be Signs in the Sun, and in the Moon, and in the Stars, and upon the Earth Diſtreſs of Nations, with Perplexity: —— Mens Hearts failing them for fear, and for looking after thoſe things which are coming on the Earth. Luke xxi. 25 26.

XCIII. The *Deluge* and *Conflagration* are referr'd, by ancient Tradition, to great Conjunctions of the Heavenly Bodies; as both depending on, and happening at the ſame.

Thus *Seneca* expreſsly: (*c*) *Beroſus* (ſays he)

(*c*) Beroſus, qui Belum interpretatus eſt, ait curſu iſta ſiderum fieri: & adeo quidem id affirmat, ut conflagrationi

who

who was an Expoſitor of Belus, *affirms, That theſe Revolutions depend on the Courſe of the Stars; inſomuch that he doubts not to aſſign the very times of a Conflagration, and a Deluge: That firſt mention'd when all the Stars, which have now ſo different Courſes, ſhall be in Conjunction in* Cancer, *all of them being ſo directly ſituate with reſpect to one another, that the ſame right line will paſs through them all together: That laſt mention'd, when the ſame company of Stars ſhall be in Conjunction in the oppoſite Sign* Capricorn. And again elſewhere (*d*) *When the Time for the Renovation comes, the Stars will exerciſe their hoſtile force one upon another, and juſtle one another: Whereby the whole being on fire, all the parts which in their preſent conſtitution have any ſparks of light or fire in them, will kindle into one general Conflagration.*

XCIV. This general *Conflagration* is not to extend to the entire Diſſolution or Deſtruction of the Earth, but only to the Alteration, Melioration, and peculiar Diſpoſition thereof into a new State, proper to receive thoſe Saints and Martyrs for its Inhabitants, who are at the

---

atque diluvio tempus aſſignet: arſura enim terrena contendit, quando omnia ſidera, quæ nunc diverſos agunt curſus, in Cancrum convenerint, ſic ſub eodem poſita veſtigio, ut recta linea exire per orbes omnium poſſit; Inundationem futuram, cum eadem ſiderum turba in Capricornum convenerit. Illic Solſtitium, hic Bruma conficitur. *Senec. Queſt. Nat.* l. 3. c. 29.

(*d*) Et cum tempus advenerit, quo ſe mundus renovaturus extinguat, viribus iſta ſuis ſe cædent, & ſidera ſideribus incurrent; & omni flagrante materia, uno igne, quicquid nunc ex diſpoſito lucet ardebit. *Idem, de conſol. ad Marciam. cap. ult.*

first Reſurrection to enter, and to live and reign a thouſand Years upon it, till the ſecond Reſurrection, the general Judgment, and the final Conſummation of all things.

The Heavens being on fire, ſhall be diſſolved, and the Elements ſhall melt with fervent Heat. Nevertheleſs we, according to his Promiſe, look for new Heavens, and a new Earth, wherein dwelleth Righteouſneſs. 2 Pet. iii. 12, 13.

Behold I create new Heavens, and a new Earth, and the former ſhall not be remembred nor come into mind. Iſa. lxv. 17.

Verily I ſay unto you, That ye which have followed me; In the Regeneration, when the Son of Man ſhall ſit upon the Throne of his Glory, ye alſo ſhall ſit on twelve Thrones judging the twelve Tribes of Iſrael. And every one that has forſaken Houſes, or Brethren, or Siſters, or Father, or Mother, or Wife, or Children, or Lands, for my Names ſake, ſhall receive an hundred fold, now in this time, Houſes, and Brethren, and Siſters, and Mothers, and Children, and Lands, with (his preſent) *Perſecutions, and in the World to come eternal Life.* Mat. xix. 28,29. Mar. x. 29 30. Luke xviii. 29, 30.

Of old thou haſt laid the Foundations of the Earth; and the Heavens are the Work of thy Hand: They ſhall periſh, but thou ſhalt endure; yea all of them ſhall wax old like a garment; as a veſture ſhalt thou change them, and they ſhall be changed. Pſ. cii. 25, 26.

I ſaw Thrones, and they ſat upon them; and Judgment was given unto them: And I ſaw the Souls of them that were beheaded for the Witneſs of Jeſus, and for the Word of God, and which had not worſhipped the Beaſt, neither his image, neither had received his mark upon their Foreheads, or in their Hands, and they lived and reigned with Chriſt a thouſand Years. But the reſt of the dead lived not again Apoc. xx. 4, &c.

until the thouſand Years were finiſhed: This is the firſt Reſurrection. Bleſſed and holy is he that hath part in the firſt Reſurrection; on ſuch the ſecond Death hath no Power: But they ſhall be Prieſts of God, and of Chriſt; and ſhall reign with him a thouſand Years, &c.

Theor. l. 4. c. 2, 3, 4, 5, 6.

But ſo much has been ſaid on this Head, to omit others, by the *Theoriſt*, that I ſhall refer the *Reader thither*, for the other Teſtimonies of the Holy Scriptures, and the unanimous Conſent of the moſt Primitive Fathers: Both which he at large, and to excellent Purpoſe, (ſome Particulars excepted) has inſiſted on.

XCV. The State of Nature during the *Millennium* will be very different from that at preſent, and more agreeable to the *Antediluvian*, *Primitive*, and *Paradiſiacal* ones.

Acts iii. 21.

Whom the Heavens muſt receive until the time of the Reſtitution of all things, which God hath ſpoken by the Mouth of all his holy Prophets ſince the World began. See more in the *Theory*, Book 4. Chap. 9. and in the Proofs of the former Propoſition.

XCVI. The Earth in the *Millennium* will be without a Sea, or any large receptacle fill'd with mighty Collections and Quantities of Waters.

Apoc. xxi. 1.

I ſaw a new Heaven, and a new Earth; for the firſt Heaven, and the firſt Earth were paſſed away, and there was no more Sea.

XCVII. The Earth in the *Millennium* will have no ſucceſſion of Light and Darkneſs; Day and Night; but a perpetual Day.

Apoc. xxi. 25. Cap. xxii. 5.

The Gates of the new Jeruſalem *ſhall not be ſhut at all by day; for there ſhall be no night there. And there ſhall be no night there.*

XCVIII.

XCVIII. The State of the *Millennium* will not ſtand in need of, and ſo probably will be without, the light and preſence of the Sun and Moon.

And the City had no need of the Sun, neither of the Moon to ſhine in it. Apoc. xxi. 23.

And they need no candle, neither light of the Sun. Cap. xxii. 5.

XCIX. At the Concluſion of the *Millennium*, the Final Judgment and *Conſummation* of all things, the Earth will deſert its preſent Seat and Station in the World, and be no longer found among the Planetary *Chorus*.

I ſaw a great white Throne, and him that ſat on it; from whoſe Face the Earth and the Heavens fled away, and there was found no place for them. Apoc. xx. 11. Theor. l. 4. c. 10.

BOOK IV.

SOLUTIONS:

OR,

An Account of the foregoing *Phænomena* from the Principles of Philosophy already laid down.

CHAP. I.

A Solution of the Phænomena *relating to the* Moſaick *Creation, and the original Conſtitution of the Earth.*

I. All thoſe particular ſmall Bodies, of which our habitable Earth is now compos'd, were originally in a mixed, confuſed, fluid, and uncertain Condition, without any Order or Regularity. It was an *Earth without form, and void*; had *Darkneſs* ſpread over *the face of its Abyſs*; and in reality was, what it has been ever ſtil'd, a perfect *Chaos*.

Hypoth. 1. *prius.*

I. THIS has been already ſufficiently accounted for, and need not be here again inſiſted on.

II. The formation of this Earth, or the Change of that *Chaos* into an habitable World, was not a meer reſult from any neceſſary Laws of *Mechaniſm* independent-

pendently on the Divine Power; but was the proper effect of the Influence and Interpoſition, and all along under the peculiar Care and Providence of God.

II. 'Tis not very eaſy, I confeſs, in ſuch mighty Turns and Changes of the World, exactly to determine how far, and in what particulars, a ſupernatural or miraculous Interpoſition of the Divine Power is concern'd; and how far the Laws of Nature, or Mechanical Powers ought to be extended. Nay indeed, 'tis difficult enough, in ſeveral inſtances to determine what is the effect of a natural and ordinary, and what of a ſupernatural and extraordinary Providence. 'Tis now evident, that *Gravity*, the moſt mechanical Affection of Bodies, and which ſeems moſt natural, depends entirely on the conſtant and efficacious, and, if you will, the ſupernatural and miraculous Influence of Almighty God. And I do not know whether the falling of a Stone to the Earth ought not more truly to be eſteem'd a *ſupernatural Effect*, or a *Miracle*, than what we with the greateſt ſurprize ſhould ſo ſtile, its remaining pendulous in the open Air; ſince the former requires an *active Influence* in the Cauſe, while the latter ſuppoſes *Non-annihilation* only. But beſides this, tho' we were able exactly to diſtinguiſh in general the ordinary Concurrence of God from his extraordinary, yet would the Task before us be ſtill ſufficiently difficult. For thoſe Events or Actions are in holy Scripture attributed immediately to the Power and Providence of God, which yet were to all outward appearance according to the conſtant courſe of things; and would, abſtractedly from ſuch Affirmations of the Holy Books, have been eſteem'd no more miraculous than the other common Effects of Nature, or uſual Accidents

Vid. *Lem.* 9. *cum Coroll. prius.* And Dr. *Bentley*, Serm. 7. p. 26, &c.

of Human Affairs; as thoſe who have carefully conſider'd theſe matters, eſpecially the Hiſtorical and Prophetical Parts of the *Old Teſtament*, muſt be oblig'd to confeſs. Neither is it unreaſonable that all things ſhould in that manner be aſcrib'd to the ſupreme Being on ſeveral accounts. 'Tis from him every thing is ultimately deriv'd: He preſerves the Natures, and continues the Powers of every Creature: He not only at firſt produc'd, but perpetually diſpoſes and makes uſe of the whole Creation, and every part thereof, as the Inſtruments of his Providence: He foreſaw and fore-adapted the entire Frame: He determin'd his Co-operation or Permiſſion to every Action: He ſo order'd and appointed the whole Syſtem, with every individual Branch of it, as to Time, Place, Proportion, and all other Circumſtances, that nothing ſhould happen unſeaſonably, unfitly, diſproportionately, or otherwiſe than the Junctures of Affairs, the demerits of his reaſonable Creatures, and the wiſe Intentions of his Providence did require. In fine, he ſo previouſly adjuſted and contemper'd the Moral and Natural World to one another, that the Marks and Tokens of his Providence ſhould be in all Ages legible and conſpicuous, whatſoever the viſible ſecondary Cauſes or Occaſions might be. Seeing then this is the true State of the Caſe; and that conſequently, Almighty God has ſo conſtituted the World, that no Body can tell wherein it differs from one, where all were ſolely brought to paſs by a miraculous Power; 'tis by no means untrue or improper in the Holy Books to refer all thoſe things which bare Human Authors would derive from ſecond Cauſes, the conſtant Courſe of Nature, and the Circumſtances of Human Affairs, to the

the firſt Cauſe, the ultimate Spring and Original of all; and to call Mens Thoughts (which are too apt to terminate there) from the apparent Occaſions, to the inviſible God, the Creator, Governor, and Diſpoſer of the whole, and the ſole Object of their Regard and Adoration. This is, I ſay, a very proper and reaſonable Procedure; this is uſually obſerv'd by the ſacred Penmen, (who are thereby peculiarly diſtinguiſh'd from prophane Authors) and this is of the higheſt Advantage in Morality. But then it muſt be withal acknowledg'd, that this creates great Difficulties in the preſent Caſe, and makes it very hard in a Philoſophick Attempt of this nature, to diſtinguiſh between thoſe parts of the *Moſaick* Creation, which are *Mechanically* to be accounted for, and thoſe in which the miraculous *Energy* of God Almighty interpos'd it ſelf; which yet, if ever, is certainly to be allow'd in this caſe, where a new World was to be form'd, and a wild *Chaos* reduc'd into a regular, beautiful, and permanent Syſtem. This being ſaid in general, to beſpeak the *Reader*'s Candor in the preſent Caſe, and to forewarn him not to fear the moſt Mechanical and Philoſophick Account of this Creation, as if thereby the Holy Scriptures wrre ſuperſeded, or the Divine Power and Providence excluded; I come directly to the Point before us, and ſhall endeavour to determine what are the Inſtances of the extraordinary Power and Interpoſition of God in this whole Affair. That as we ſhall preſently ſee how Orderly, Methodical, and Regular this Formation was, ſo we may before-hand be duly ſenſible how Supernatural, Providential, and *Divine* it was alſo; and ſo as well, like *Chriſtians*, contemplate and adore the Omnipotent Creator in his

Miraculous, as we, like *Philoſophers*, ſhall attempt to conſider and remark his Vicegerent Nature in her *Mechanical* Operations therein. For, notwithſtanding what has been above inſiſted on touching the frequency and propriety of aſcribing the Effects of Nature to the Divine Power; (the former being indeed nothing, but the latter acting according to fix'd and certain Laws;) yet, becauſe more has been commonly, and may juſtly be ſuppos'd the importance of the Texts of Scripture hereto relating; becauſe the Finger of God, or his ſupernatural Efficiency, is, if ever, to be reaſonably expected in the Origin of things, and that in a peculiar and remarkable manner; becauſe ſome things done in this Creation are beyond the Power of Philoſophy and Mechaniſm, and no otherwiſe accountable but by the infinite Power of God himſelf; becauſe the Days of Creation are ſignally diſtinguiſh'd from thoſe following, in which God is ſaid to have *reſted*; (when yet his ordinary Concurrence with the Courſe of Nature was continu'd without Interruption;) and muſt therefore be reckon'd ſuch, on which he truly exerted a Power different from the other: On all theſe accounts, I freely, and in earneſt allow and believe, that there was a peculiar Power, and extraordinary Providence exercis'd by the great Creator of all, in this Primitive Origin of the Sublunary World, or Formation of the Earth, which we are a going to account for. The particular Inſtances I ſhall give of the ſame, without preſuming to exclude all others, are theſe following.

1. The Creation of the Matter of the Univerſe, and particularly of that of the Earth, out of nothing, was, without doubt, originally, the alone and

and immediate Work of God Almighty. Nature (let what will be meant by that name) could have no hand in this, from whence at the utmoſt ſhe can but date her own Birth. The production of a real Being out of nothing; or, to ſpeak more properly, the primary bringing any real thing into Being, is in the Opinion of all Men, the Effect of no leſs than an infinite and Omnipotent Deity. I have already own'd this to be the import of the firſt Words of this Creation we are now upon, *In the Beginning God created the Heaven and the Earth.* And I think 'tis here no improper Place to declare my Opinion, That conſidering the *Idea* and nature of God includes *Active Power*, *Infinite Perfection*, with *Neceſſity* and ſo *Eternity of Exiſtence*; whilſt the *Idea* and Nature of Matter ſuppoſes *entire Inactivity*, *no poſitive Perfection*, and a *bare Poſſibility or Capacity of Exiſtence*; 'tis as abſurd and unreaſonable to attribute Eternity and neceſſity of Exiſtence to the latter, as 'tis rational and natural to aſcribe thoſe Perfections, with a Power of Creation, to the former. The very *Being* and *Nature*, as well as the *Properties* and *Powers* of Matter being moſt juſtly and moſt philoſophically to be referr'd to the Author of all, the Almighty Creator. And altho' our Imagination (a poor finite, limited, and imperfect Faculty,) be unable to have a poſitive *Idea* of the manner of the Production of a real Being at firſt; (as indeed 'twere ſufficiently ſtrange, if ſo confin'd a Power of ſo imperfect a Creature ſhould adequately reach the higheſt point of Omnipotence it ſelf;) yet ſeeing the Abſurdities following the Eternity, and Self-ſubſiſtence of Matter on the other ſide are ſo conſiderable; and the Certainty of the proper Creation of Spiritual Beings nobler than Matter, ſuch

Diſcourſe *p.* 4, 5, 7. Gen. i. 1.

Vid. Dr. *Bently*, Serm. 6.

ſuch as the Souls of Men are, as great, as 'tis utterly incredible they ſhould have been *ab æterno* too, (for I take it to be almoſt *demonſtrable* that Souls are immaterial :) I think 'tis far more reaſonable to reſt ſatisfied with our former Aſſertion, That God did truly bring Matter into being at firſt, than, its Eternity ſuppos'd, to make only the Modification and Management thereof the Province of the Almighty : And conſequently, the firſt Inſtance of a Divine Efficiency with relation to the Subject we are now upon, and the higheſt of all other, was the original Production of the Matter of which the Earth was to conſiſt, or the proper Creation of thoſe *inferior* Heavens, and of the Earth which were to be the ſole Object of the Divine Operations in the Six Days Work. This Particular, I confeſs, does not ſo properly belong to our preſent Buſineſs, the Formation of the *Chaos* into a habitable World ; but could not well be omitted, either conſider'd in it ſelf, as it bears ſo peculiar a Relation to our preſent Purpoſe ; or with reſpect to that Miſconſtruction I might with ſome *Readers* have otherwiſe been liable to. But I proceed ;

(2.) The changing of the Courſe and Orbit of the *Chaos* into that of a Planet (to omit the former *Annual*, and ſubſequent *Diurnal* Revolutions, which tho' equally from God, yet do not ſo fully belong to this Place), or the placing of the Earth in its primitive ſmaller *Elliptick*, and after in its *Circular* Orbit at its proper Diſtance, therein to revolve about the *Sun*, was either an Inſtance of the immediate Power, or at leaſt of the peculiar Providence of God. For if we ſhould ſuppoſe, as 'tis poſſible ſo to do, that God did not by a miraculous Operation remove the *Chaos* or

Comet

Comet from its very Eccentrick *Ellipſis* to that Circle in which it now began to revolve; but that he made uſe of the Attraction or Impulſe of ſome other Body; yet in this Caſe, (without conſidering that one of thoſe Powers at leaſt is nothing but a Divine Energy) the Lines of each Bodies Motion, the quantity of Force, the proper Diſtance from the *Sun* where, and the exact time when it happen'd, (to name no other Particulars here,) muſt have been ſo preciſely and nicely adjuſted before-hand by the Preſcience and Providence of the Almighty, that here will be not a much leſs remarkable Demonſtration of the *Wiſdom*, *Contrivance*, *Care*, and *Goodneſs*, than the other immediate Operation would have been of the *Power* of God in the World.

(3.) The Formation of the Seeds of all Animals and Vegetables was originally, I ſuppoſe, the immediate Workmanſhip of God. As far as our Microſcopes can help us to diſcern the Make and Conſtitution of Seeds; thoſe of Plants evidently, and, by what hitherto appears, of Animals too, are no other than the entire Bodies themſelves *in parvo*; and contain every one of the ſame Parts and Members with the compleat Bodies themſelves when grown to Maturity. Since therefore, conſequently, all *Generation* is with us nothing, ſo far as we can find, but *Nutrition* or *Augmentation of Parts*; and that agreeably thereto no Seed has been by any Creature produc'd ſince the beginning of things: 'Tis very Juſt, and very Philoſophical to conclude them to have been originally every one created by God, either out of nothing, in the primary Exiſtence of things; or out of preexiſting Matter, at the *Moſaick* Creation. And indeed, ſince the Origin of Seeds appears to be hitherto unaccounta-

Vid. Dr. *Bentley*, Serm. 4.

ble

able by the mechanical Laws of Matter and Motion, 'tis but reaſonable to ſuppoſe them the immediate Work of the Author of Nature: Which therefore I think the warieſt Philoſopher may well do in the preſent Caſe.

(4.) The Natures, Conditions, Rules and Quantities, of thoſe ſeveral Motions and Powers according to which all * Bodies, (of the ſame general Nature in themſelves,) are ſpecifi'd, diſtinguiſh'd, and fitted for their ſeveral uſes, were no otherwiſe determin'd than by the immediate *Fiat*, Command, Power, and Efficiency of Almighty God. 'Tis to be here conſider'd, That tho' the Power of mutual Attraction or Gravitation of Bodies appears to be conſtant, and univerſal; nay almoſt eſſential to Matter in the preſent Conſtitution of the World; (the entire Frame of that Syſtem in which we are, if not of all the other Syſtems, ſo ſtrictly depending thereon;) yet the other Laws of Nature, on which the particular Qualities of Bodies depend, ſeem not to be ſo; but mutable in themſelves, and actually chang'd according to the Changes in the Figure, Bigneſs, Texture, or other Conditions of the Bodies or Corpuſcles with which they are concern'd. Thus the *Coheſion* of the parts of Matter, and that in ſome with leſs, but in others with the greateſt and moſt ſurprizing Firmneſs; the *Fermentation* of ſeveral heterogeneous Particles, when mixt together; the *Magnetiſm* of

* *Utinam cætera Naturæ Phænomena ex principiis mechanicis eodem argumentandi genere derivare liceret. Nam multa me movent ut nonnihil ſuſpicer ea omnia ex viribus quibuſdam pendere poſſe, quibus corporum particulæ, per cauſas nondum cognitas, vel in ſe mutuo impelluntur, & ſecundum figuras regulares cohærent, vel ab invicem fugantur, & recedunt: quibus viribus ignotii, Philoſophi hactenus naturam fruſtra tentarunt.* Newt. Philoſ. Nat. Princ. Math. Præf. ad Lector.

the

the Loadſtone, with the various and very ſtrange *Phænomena* of that wonderful Foſſil; the *Elaſticity* of certain Fluids and Solids; the contrary obſtinate Inflexibility and Reſiſtance of others; the different *Denſity* of ſeveral Collections or Maſſes of Fluids, (while yet the greateſt part of their contained ſpace is Vacuity) not to be conſiderably increas'd or diminiſh'd, without the Deſtruction of the *Species*: All theſe, and many other *Phænomena* ſhew, That there are various Rules and Laws of Matter and Motion not belonging to all, as that of Gravitation does, but peculiar to ſome particular Conditions thereof; which therefore may be chang'd, without any damage to the Law of Gravity. In the impreſſing and ordering of which there is room for, if not a Neceſſity of, introducing the particular and immediate Efficacy of the Spirit of God at firſt, as well as of his continual Concurrence and Conſervation ever ſince. When therefore, in a full Agreement with the ancient Traditions, 'tis ſaid by *Moſes*, That *the Spirit of God moved on the Face of the Waters*; we may juſtly underſtand thereby his impreſſing, exciting, or producing ſuch Motions, Agitations, and Fermentation of the ſeveral Parts; ſuch particular Powers of Attraction or Avoidance, (beſides the general one of Gravity,) of Concord or Enmity, of Union or Separation; and all theſe in ſuch certain Quantities, on ſuch certain Conditions of Bodies, and in ſuch certain diſtinct Parts and Regions of the Chaos, as were proper and neceſſary for that particular Courſe and Diſpoſition of Nature which it ſeem'd good to the Divine Spirit to introduce, and on which this future Frame of things here below was ever after to depend.

Gen. i. 2. *Vid. Loca de Chao prius laudata.*

(5.) The Ordering of all things ſo that in the

the ſpace of ſix ſucceſſive Solar Revolutions the whole Creation ſhould be finiſh'd, and each diſtinct Days Work ſhould be confin'd to, and compleated in its own diſtinct and proper Period, is alſo to be aſcrib'd to the particular Providence and Interpoſition of God. That every thing followed in its own order and place: As that the Seeds of Vegetables on the Third, thoſe of Fiſh and Fowl on the Fifth, and thoſe of the Terreſtrial Animals on the Sixth Day, ſhould be every one plac'd in their proper Soil, and fitly diſpos'd at their proper time to accompany and correſpond with the ſuitable Diſpoſition of external Nature, and juſt then to germinate and fructify, when the order and proceſs of the other parts of the Creation were ready for, and required the ſame.

And here it will be fit to conſider an Objection made againſt the preſent *Hypotheſis*, *viz.* That if we proceed mechanically and gradually in the formation of the Earth, from a Comet's Atmoſphere, we muſt allow the whole ſubſidence to be as leiſurely, and to proceed by the ſame Steps that the Violence of its heat decreaſes; which will then be compleated not in *ſix Days* or *ſingle Years*, but ſcarcely in as many *Centuries*. But in anſwer to this, I deny that all the Confuſions of a Comet's Atmoſphere are owing to the Heat at the *Perihelion*; and I alſo affirm, that ſince Aſtronomers find by Obſervation, that upon a Comet's return to the Solar Regions towards its *Perihelion*, its Atmoſphere does ſtill return therewith, and is not at all ſettled and formed like a Planet, I muſt contradict that Obſervation, if I ſhould aſcribe the formation of our Earth to ſuch a gradual and tedious Operation. In my Opinion all the ſame Laws, Properties, and Operations of Bodies which we find eſtabliſh'd here on Earth, do not

ſo univerſally obtain in the Atmoſpheres of Comets: But ſeveral new ones were, I ſuppoſe, introduc'd at the *Moſaik* Creation; ſuch I mean (beſides the Law of Gravity, and the general and mechanical Laws of Motion, which I look upon as univerſal, and ſome of them unalterable,) as were fit or neceſſary for the primary formation and continuance of that New World, which God's Providence was then introducing. I do not therefore ſay with ſome, That the Earth was not form'd according to the known Laws of *Mechaniſm*, but by the Efficacy of the Divine Spirit which moved on the face of the Waters: But denying the Oppoſition, I affirm, that the Earth was form'd according to the known Laws of *Mechaniſm*, ſome of them introduc'd then by the Efficacy of the Divine Spirit which moved on the Face of the Waters, and ever ſince continued among us. For, for the Almighty to introduce new and regular Laws at the Beginning of a new World which are to be ever after obſerv'd in it, I take to be a Miraculous Interpoſition very worthy of God, and very accountable to the Reaſon of Mankind. And to ſome of theſe Laws duly tim'd and proportion'd, I refer the exactneſs of the preſent Obſervations; *viz.* That all things ſhould in juſt 6 Days or Years time be finiſh'd and compleated, in the manner we have'em mention'd in the *Moſaick* Hiſtory. And truly every thing here does ſo ſuit together, that the plain Footſteps of particular Art and Contrivance are viſible in the whole Conduct and Management of this Matter: Which therefore is not to be deriv'd from meer Mechanical Laws of Brute Matter, but from a Supernatural and Divine Providence.

(6.) But principally, The Creation of our firſt Pa-

Parents is to be eſteem'd the peculiar Operation of the Almighty ; and that whether we regard the Formation of their Bodies, or the Forepaſt Creation and After-Infuſion of their Souls. 'Tis evident from the *Moſaick* Hiſtory of the Creation, that our firſt Parents were on the very ſame Day in which they were made, in a State of Maturity and Perfection, and capable of all Human Actions, both of Mind and Body. Now if they, like the other Animals, had been produc'd in the uſual Time and proceſs of Generation, and come to ripeneſs of Age and Faculties by degrees afterwards ; That were plainly impoſſible. This Creation therefore muſt have been peculiar, and the immediate Effect of a Divine Power. And this is no leſs agreeable to Philoſophy, than ſuitable to the Dignity of the Subject, and for the Honour of Mankind. It has been already obſerv'd that the Seeds of Plants and Animals muſt be allow'd to have been all the immediate Workmanſhip of God ; and that they contain every individual Part or Member of the entire Bodies, *in parvo* ; and that by conſequence Generation is nothing elſe but Nutrition or Argumentation. Since therefore God by his immediate Power, created the entire Bodies of all Plants and Animals, 'tis by no means hard to conceive that he might create them in what Degree of Maturity and Perfection he pleas'd, without any manner of Infringement of the Order of Nature then to be eſtabliſh'd : And if we have reaſon to believe, that the Bodies of brute Creatures were created *in parvo*, in a ſmall State, ſuch as we now call Seeds, and ſo requir'd a proper Generation, *i. e.* Nutrition and Augmentation of Parts ; (as the *Moſaick* Hiſtory plainly deſcribes them ; and had it not done ſo, we could

could not with any Certainty have asserted it;) We have sure equal Reason to believe, from the Description of the same Author in this other case, that the Bodies of our first Parents were Originally created in their Mature Bulk, and State of Manhood; so as immediately to be capable of the same Operations which at any time afterward they might be thought to be. This miraculous Origination of the Bodies of our first Parents is therefore very rationally ascribed to the Finger of God by *Moses*: And we may justly believe that every Person in the Blessed Trinity, as 'tis represented in the Sacred History, was peculiarly concern'd in the Production of that Being which was to bear the Image of God, and be made capable of some degree of his Immortality. And then as to the Soul of Man, 'tis certainly a very distinct Being from, and one very much advanced above the Body; and therefore if we were forc'd to introduce a Divine Power in the Formation of the latter, we can do no less than that in the Creation and Infusion of the former. And indeed the Dignity and Faculties of the Human Soul are so vastly exalted above all the Material, or merely Animal Creation, that its Original must be deriv'd from the immediate Finger of God, in a manner still more peculiar and divine than all the rest. That nearer resemblance of the Spiritual Nature, Immortal Condition, Active Powers, and Free, Rational, and Moral Operations of the Divine Being it self, which the Souls of Men were to bear about them, did but require some peculiar and extraordinary Conduct in their first Existence, after-Union with Matter, and Introduction into the corporeal World. Agreeably whereto we may easily observe a signal Distinction in the Sacred History between the formation

of all the other Animals, and the Creation of Man. In the former Caſe 'tis only ſaid, *Let the Waters*
Gen.i.20. *bring forth the moving Creature that hath Life. Let the Earth bring forth the living Creature after his*
Verſe 24. *Kind.* But of the latter the entire Trinity conſult: *And God ſaid, Let Us make man in our I-*
Verſe 26. *mage, after our Likeneſs. And the Lord God form-*
Chap.ii.7. *ed man of the duſt of the ground, and breathed into his noſtrils the breath of life, and man became a living ſoul.* As therefore the ſeveral parts of the *Moſaick* Creation before-mention'd are not to be mechanically attempted, but look'd upon as the Effects of the Extraordinary and Miraculous Power and Providence of God, ſo more eſpecially the Formation of the Body of Man in its mature State, and moſt of all the primary Creation and after-Infuſion of the Rational Human Soul, is to be wholly aſcrib'd to the ſame wonderful Interpoſition and Efficiency of the Supreme Being, the Creator of all things, *God bleſſed for evermore.* All which taken together and duly conſider'd, is, I think, a ſufficient and ſatisfactory Account of the Propoſition before us, and attributes as much to the Miraculous and immediate Hand of God, as either Tradition, Reaſon, or Scripture, require in the preſent Caſe.

III. The Days of the Creation. and that of Reſt, had their Beginning in the Evening.

Corol. 1. *Lem* 73. & *Hypoth.* 5. *cum Coroll.* 1. *prius.*

III. This has been already accounted for, and that Account need not here be repeated.

Corollary 1. *This* Phænomenon *in ſome meaſure confirms our* Hypotheſis, *that the Primitive* Days *of the World were* Years *alſo. For otherwiſe the ſpace of one ſingle ſhort Night ſeems too inconſiderable to have been taken ſuch notice of in this Hiſtory; and then, and ever after, made the firſt half of the Natural Day. But if it were equal to two or three Months, the*

the time from the Autumnal till the Vernal Equinox, which may be called half a Year, it was too considerable to be omitted, and its Memory was very justly preserved in succeeding Ages.

Corollary 2. *We may here begin to take notice of the Regularity and Methodicalness of this History of the Creation: Which, tho' it principally intends the giving an account of the* Visible *Parts of the World, and how the state of Nature in each Period appeared in the* Day *time; yet omits not the foregoing* Night: *Which is very Mechanical and Natural. For in the preceding Night all things were so prepar'd and dispos'd, that the Work of each* Day *might, upon its Appearance, display it self; might be exhibited, not in its unseen Beginnings, or secret Workings, not in its previous Causes, and gradual Procedure, (which was not the Design of this History) but in that more distinct and perfect Condition in which things would in the Day time appear to the view of a Spectator, and under which chiefly they were to be described and recorded in this History.*

IV. At the time immediately preceding the six Days Creation, the face of the *Abyss*, or *superior* Regions of the *Chaos*, were involv'd in a thick Darkness.

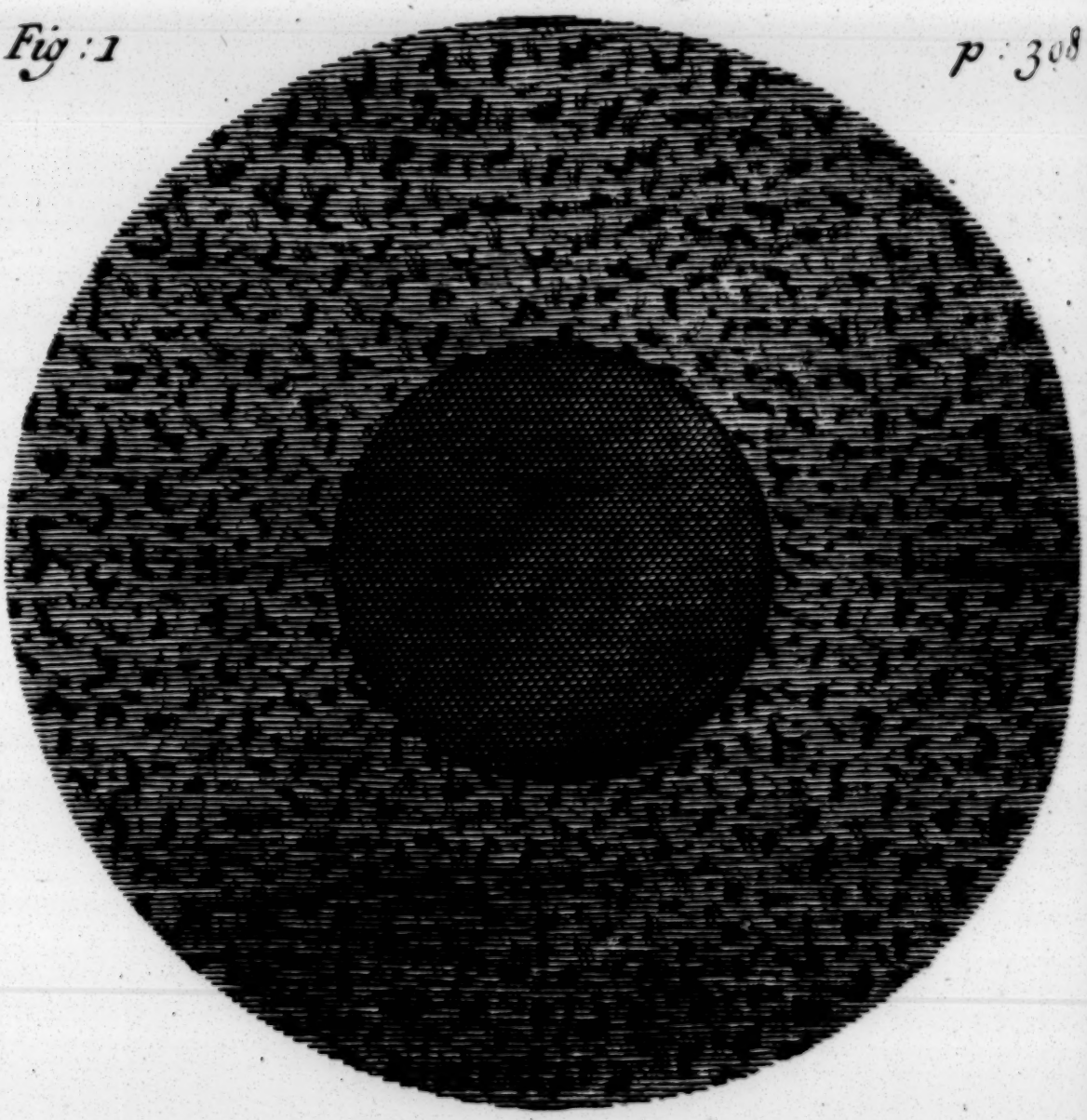
IV. If we consider what has been already said of the Nature of a Comet, or peculiarly of that *Atmosphere* which has been before shewn to have been the ancient *Chaos*, we ought to represent it to our selves as containing a Central, Solid, Hot Body, of many 100 or 1000 Miles in Diameter; and besides that, a vastly large, fluid, heterogeneous Mass, or *congeries* of Bodies, in a very rare, separate, and expanded condition, whose Diameter were ten or eleven times as long as that of the central Solid, which is the *Atmosphere* or *Chaos* now to be consider'd: In which we must remem-

Lem. 45. *&c.* and 60, 61, *&c.* *& Hypoth.* 1. *prius.*

ber was contain'd both a ſmaller quantity of dry, ſolid, or earthy Parts, (with a ſtill much ſmaller of Aery and Watery) and as large a quantity of denſe and heavy Fluids, of which the main bulk of the Atmoſphere was compos'd, all confuſedly mix'd, blended, and jumbled together. In which ſtate the *Theoriſt*'s Firſt Figure, excepting the Omiſſion of the Central Solid, will well enough repreſent it; and in which State, tho' not in their due Proportions, we accordingly delineate it in the following Figure;

Theor. p. 35.

Fig: 1 *p: 308*



But upon the change of the Comet's Orbit from a very *Eccentrical* to a moderate *Elliptical* one,

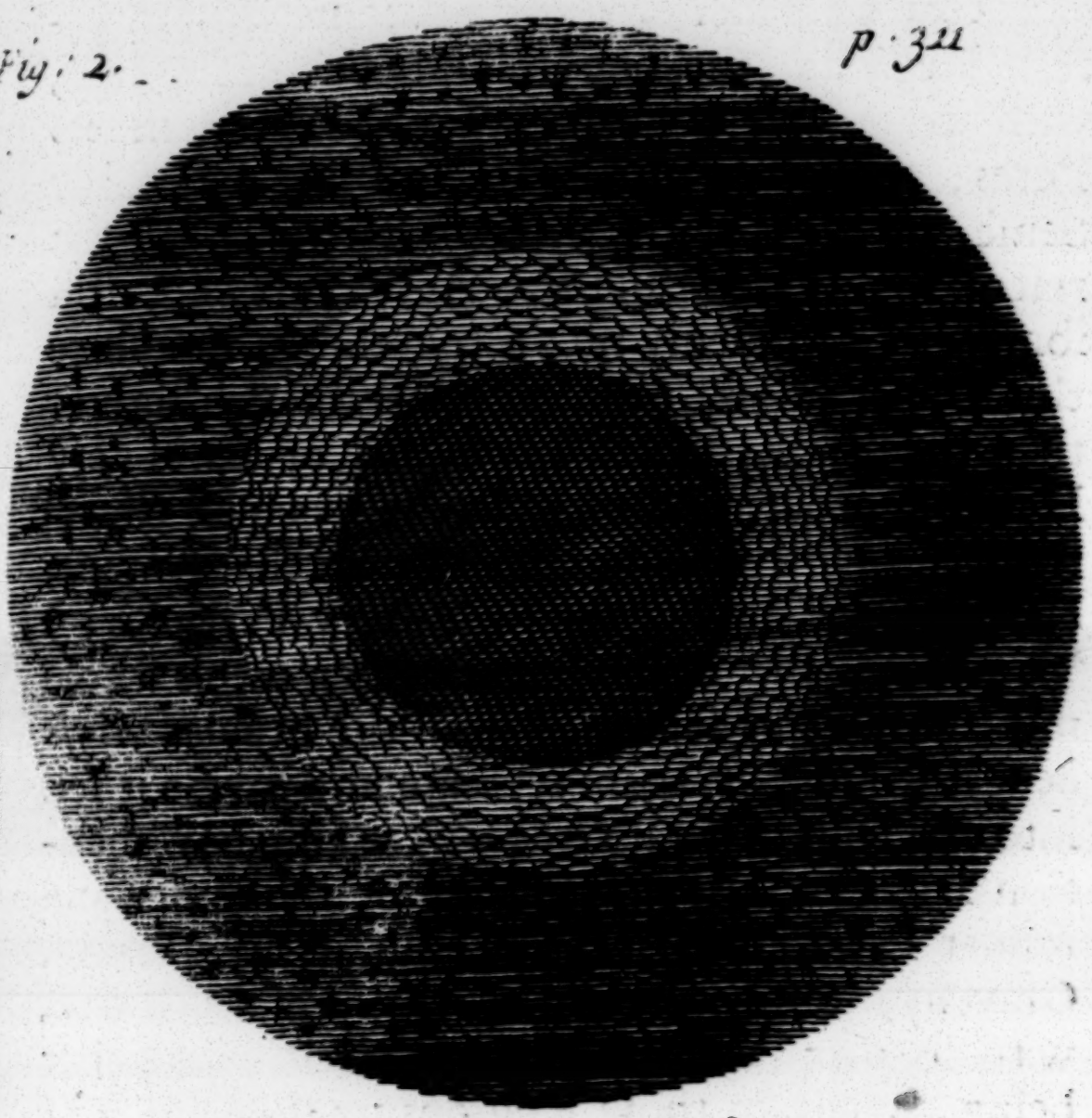
one, the Commencing of the *Moſaick* Creation, and the Influence of the Divine Spirit, all things would begin to take their own Places, and each *Species* of Bodies rank themſelves into that order, which, according to the Law of Specifick Gravity, were due to them. By which method the Maſs of denſe Fluids, which compos'd one part of the entire *Chaos*, being heavier than the Maſſes of Earth, and Water, and Air, would ſink downwards with the greateſt Force and Velocity, and elevate thoſe Maſſes incloſed among them upwards. Which procedure muſt therefore diſtinguiſh the Chaos or Atmoſphere into two very different and diſtinct Regions: The lower and larger whereof would be a Collection, or Syſtem of denſe and heavy Fluids, or a vaſt Abyſs immediately encompaſſing the central ſolid Body: The higher and leſſer would be a Collection, or Syſtem of earthy, watery, and aery Parts, confuſedly mix'd together, and encompaſſing the ſaid Abyſs, in the ſame manner as that did the central Solid. And this I take to be the State of Darkneſs, which the Propoſition we are upon mentions: And that the *Chaos*, particularly the Face or upper Regions of it, were at this time in ſuch a dark and caliginous Condition, will eaſily appear. For all thoſe Opake or Earthy Corpuſcles which before rov'd about the immenſe Regions of the Atmoſphere, and frequently even then obſcur'd the Central Solid to any external Spectator, were now crowded nearer together; and inſtead of flying up and down in, or poſſeſſing a prodigious Orb or Expanſum, were reduc'd to a narrow Sphere, and confin'd within a ſpace not perhaps in Diameter the hundredth Part of the former; and muſt by conſequence exclude the Rays of the Sun in another-

gueſs manner than before. We cannot but obſerve in our preſent Air, That the very ſame Vapours which, when diſſipated and ſcatter'd through the *Atmoſphere*, (whoſe extent yet is not ſo great,) freely admit the Rays of the Sun, and afford us clear and lightſome Days; when they are collected into Clouds, become opake Maſſes, and are capable of obſcuring the Sky, and rendring it conſiderably dark to us. In the ſame manner 'tis eaſy to ſuppoſe, that thoſe Opake and Earthy Maſſes, which in thoſe vaſter Regions would but in a leſs degree, and in ſome places, exclude the Beams of the Sun, muſt, when collected and crowded cloſer together on the Surface of the Abyſs, exclude them in a degree vaſtly ſurpaſſing the former; muſt occaſion an entire Darkneſs in all its Regions, and particularly in thoſe upper ones, over which they were immediately collected. And if from the former compariſon we eſtimate how few Vapours collected into a Cloud with us will cauſe no inconſiderable degree of Darkneſs; and allow, as is but reaſonable, a proportionably greater degree of Darkneſs to a proportionably greater number of Earthy and Opake Corpuſcles crowded together; we ſhall not doubt but all manner of Communication with the heavenly Bodies, and the external World, muſt be entirely interrupted; and the leaſt imaginable Ray or Beam of Light from the Sun excluded, not only from the loweſt but even all, excepting the very higheſt Regions of this *ſuperior Chaos*. Which ſtate of Nature, belonging to this time, immediately preceding the *Hexaemeron*, is not amiſs repreſented by the *Theoriſt*'s Second Figure, which is accordingly here delineated.

Theor p. 36.

V. The

Fig. 2. *p. 311*



V. The visible Part of the First Day's Work was the Production of Light, or its successive Appearance to all the Parts of the Earth; with the consequent Distinction of Darkness and Light, Night and Day upon the Face of it.

V. If we remember in what State we left the *Chaos* in the last Proposition, and suffer our Thoughts to run naturally along with its succeeding Mutations, we shall find that the next thing to be here consider'd, (for the Subterraneous System of dense Fluids, or the great Abyss, not coming directly within the Design of *Moses*, is not here to be particularly prosecuted any farther) is the Separation of this Upper and *Ele-*

mentary Chaos, or *Congeries* of Earthy, Watery and Aery Corpuſcles, into two ſomewhat different Regions; the one a ſolid Orb of Earth, with conſiderable quantities of Water in its Pores; the other an *Atmoſphere* in a peculiar Senſe, or Maſs of the lighteſt Earthy, with the reſt of the Watery and the Aery Particles, ſtill ſomewhat confuſedly mix'd together. For ſince this Upper *Chaos*, (tho' in general much lighter than the *Abyſs* beneath) conſiſted of Parts very Heterogeneous, and of different ſpecifick Gravities (the Earthy being heavier than the Watery, and thoſe yet heavier than the Aery Particles;) 'tis evident, that in the ſame manner as this whole mixed Maſs was ſeparated from the heavier *Abyſs* beneath, muſt it again ſeparate and divide it ſelf into two ſuch general Orbs as were juſt now mention'd. The former conſiſting of the denſer and ſolider Parts, ſuch as the Earthy, Claiy, Sandy, Gravelly, Stony *Strata* of the preſent Earth, with ſo many of the Watery Particles as either being already in thoſe Regions muſt be encloſed therein, or could deſcend from above, and have Admittance into the Pores thereof: The *latter* of the leſs Solid, and lighter Earthy; with the reſt of the Watery, and the Aery Particles, not yet ſufficiently diſtinguiſh'd from each other. This Proceſs will I ſuppoſe eaſily be allow'd, excepting what relates to the encloſing of many of the Watery Parts within the Earth; with relation to which, 'tis commonly ſuppos'd that becauſe Water is ſpecifically lighter than Earth, it muſt in the regular Digeſtions of a *Chaos*, take the Upper Situation, and cover that higheſt Orb, as that would others of greater Gravity than it ſelf. 'Tis alſo commonly imagin'd that the *Moſaick Coſmogony* favours ſuch an *Hypotheſis*, and ſuppoſes the

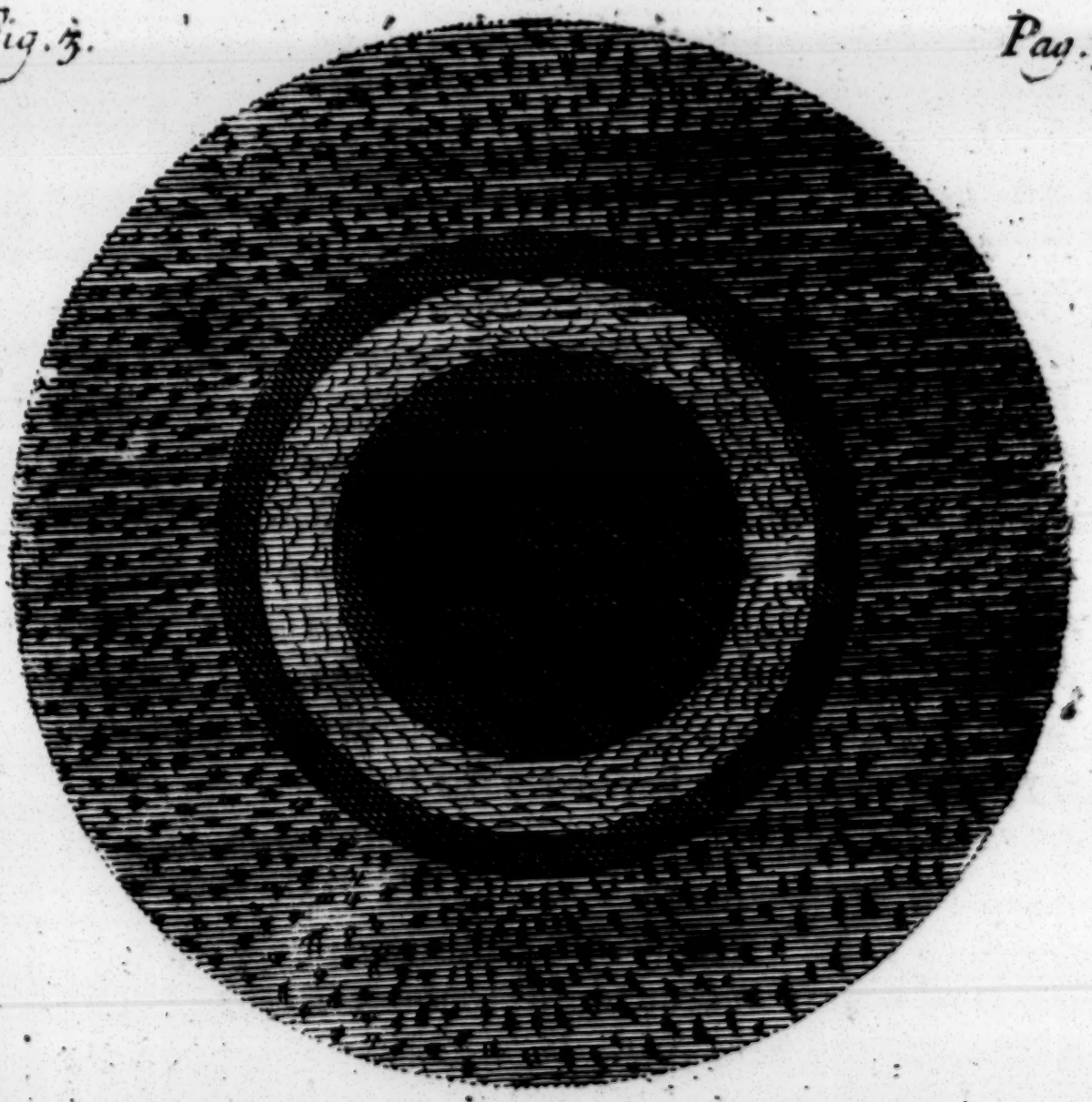
Waters to have encompaſs'd the Globe, and cover'd its Surface, till on the third Day they were deriv'd into the Seas. Now, as I by no means apprehend any neceſſity of underſtanding the *Moſaick* Creation in this Senſe ; ſo I am pretty ſure 'tis contrary to a Philoſophical Account of the Formation of the Chaos; unleſs one of theſe two things were certain, Either that the Quantity of Water were ſo much greater than that of the Earth, that all the Pores and Interſtices of the latter could not contain it; or elſe that it was generally elevated into the Air in the form of Vapour, and ſuſtain'd there while the Earth ſettled and conſolidated together, and did not till then deſcend and take its own proper place. The *former* of which is neither reconcilable to the *Moſaick* Creation, nor will be aſſerted by any who knows, even ſince the Deluge, how ſmall the Quantity of Fluids in Compariſon to that of the Solids is in the Earth on which we live. And the *latter* is too much to be granted in the preſent Caſe by any conſidering Perſon, who knows that a Comet's Vapours conſtitute the main part of that Tail or Miſt, which is ſometimes equal to a Cylinder, whoſe Baſis is 100,000 Miles in Diameter, and its Altitude as far as from the Sun to the Earth, or about 81,000,000 Miles; (as it was in the laſt famous Comet in 1681, repreſented in Sir *Iſaac Newton*'s own Scheme ;) Let the rarity of the ſame be ſuppos'd as great as any *Phænomena* ſhall require. For to clear this matter by a familiar Inſtance or Experiment ; Take Sand or Duſt, and let them fall gently into a Veſſel, till it be near full: Take afterwards ſome Water, and pour it alike gently into the ſame Veſſel: And it will ſoon appear, that, notwithſtanding the greater ſpecifick Gravity of the dry and earthy

Earthy, than of the Moiſt and Watery Parts, (whence one might imagine that the Sand or Duſt would be the loweſt, and the Water ſwim uppermoſt on the Surface of the other, without mingling therewith,) yet will the latter immediately ſink downwards, and ſo throughly drench and ſatiate the ſaid Maſs before any will remain on the Top, that its proportion to that of the Solid Parts will be very conſiderable. Which being apply'd to the Point before us, will take away all imaginable Difficulty in the Caſe: It being evident, without this Compariſon, that ſuch Watery Particles as were already intermix'd with the others would remain where they were; and with this, equally ſo, that many of the reſt, which were above the ſame, upon the firſt ſubſidence of the Earthy *Strata* would penetrate, pervade and ſaturate the ſame. So that on this firſt *Day* or *Year* of the Creation, the Earthy and Denſer Parts would take their places loweſt, on the Surface of the great Abyſs; would ſettle in part into the ſame, and compoſe an Orb of Earth; and in its Interſtices and little Cavities all ſuch watery Particles as were already in this Region, or deſcended upon it before its conſolidation, would be enclos'd; and that as far above the Surface of the Abyſs, to which they would be contiguous, as their Quantity could enable them to reach. On this firſt Day or Year alſo the upper Regions of the *Chaos*, being now in ſome meaſure freed from thoſe Earthy and Opake Maſſes which before excluded the ſame, and cauſed the beforemention'd thick Darkneſs; would in ſome degree admit the Rays of the Sun. Now therefore that glorious Emanation, *Light*, the viſible Part of this Day's Work, would begin to appear on the Face of the Earth: Now would it, by the An-

Annual Motion, ſucceſſively illuminate the ſeveral Parts of it: And now would it conſequently cauſe that natural Diſtinction between Darkneſs and Light, Night and Day round the whole Globe, which was to be accounted for in this Propoſition. Which progreſs of the *Chaos*, and ſtate of Nature is well enough exhibited by the *Theoriſt*'s third Figure; which therefore is here delineated.

Theor. p. 38.

Fig. 3. *Pag. 315.*



Corollary

Corollary. *Hence we may obſerve the Juſtneſs of the* Moſaick *Creation, and how fitly it begins at the Production of Light; without taking notice of ſuch* prior *Conditions, and ſuch Preparations of the* Chaos *which have been before explain'd, and were in order of Nature previous to this Day's Work. For this account reaching only to the viſible World, and the viſible Effects in it; and keeping ſtill within the bounds of Senſe, and of common Obſervation, could not better be accommodated to the truth of things, and the Capacities of all, than by ſuch a procedure. The Ancient condition of the* Chaos *in former Ages was no way here concern'd, and ſo was entirely to be omitted. The State of Darkneſs which immediately preceded the ſix Days Work, and which, with relation thereto, was neceſſary to be mention'd, made a very proper introduction, and ſo very fitly was to be hinted at by way of Preface thereto. Both which Caſes are accordingly by* Moſes *taken care of. And ſo the firſt Period was the Production of Light, the Admiſſion of the* Rays *of the Sun, and the Origin of Day and Night depending thereon; as the Method and* Decorum *of things, with the Apprehenſions of the People, did* both *very naturally require. For ſince in this Sacred Hiſtory of the Origin of things, not only the* Viſible *World, and the* Viſible *Parts of it were ſingly concern'd; But principally the Effects to be enumerated were ſuch as requir'd the Light and Heat of the Sun, the one to be* View'd, *the other to be* Produc'd *by; and without the latter could no more have* Been *at all, than been* Conſpicuous *without the former; 'Twas very ſuitable, and very natural in the firſt place to introduce the Cauſe or Inſtrument, and afterwards in the ſucceeding Periods, to recount the Effects thereof in the World: Firſt to acquaint us that the Light and Heat of the Sun were in ſome meaſure admitted into the upper Regions of the* Chaos,

and

and then to relate thoſe remarkable Conſequences thereof which the ſucceeding Periods of the Creation exhibited on the face of the Earth. Which Order of Nature, and Succeſſion of Things, is accordingly very prudently and fitly obſerv'd, and kept pace with, in this ſacred Hiſtory.

VI. The viſible part of the Second Day's Work was the elevation of the Air, with all its contain'd Vapours; the ſpreading it for an *Expanſum* above the Earth; and the Diſtinction thence ariſing of *Superior* and *Inferior* Waters; the former conſiſting of thoſe Vapours, rais'd and ſuſtain'd by the Air; the latter, of ſuch as either were encloſed in the Pores, Interſtices and Bowels of the Earth, or lay upon the Surface thereof.

VI. When at the Concluſion of the former Day the Heat of the Sun began conſiderably to penetrate the *Superior* Regions of the *Chaos*, and the two different Orbs, the Solider Earthy, and the Fluider Aery Maſſes, began to be pretty well diſtinguiſh'd, the ſame things would proceed ſtill on this ſucceeding Day. The Lower Earthy *Strata* would be ſettling ſomewhat cloſer together; the Watery Parts would ſubſide, and where they could get Entrance, would ſaturate their inward Pores and Vacuities, and the *Atmoſphere* would free it ſelf more and more from the heavieſt and moſt opake Corpuſcles, and thereby become in a greater degree tenuious, pure, and clear than before. Whereupon, by that time the Night, or firſt Part of this Second *Day* or *Year* was over and the Sun aroſe, the Light and Heat of that Luminary, would more freely and deeply penetrate the Atmoſphere, and become very ſenſible in theſe Upper or Aery Regions; which being ſuppos'd, the proper Effects which were to be next expected, muſt be, that vaſt Quantities of Vapours would be elevated into, and there ſuſtain'd by the now better purify'd

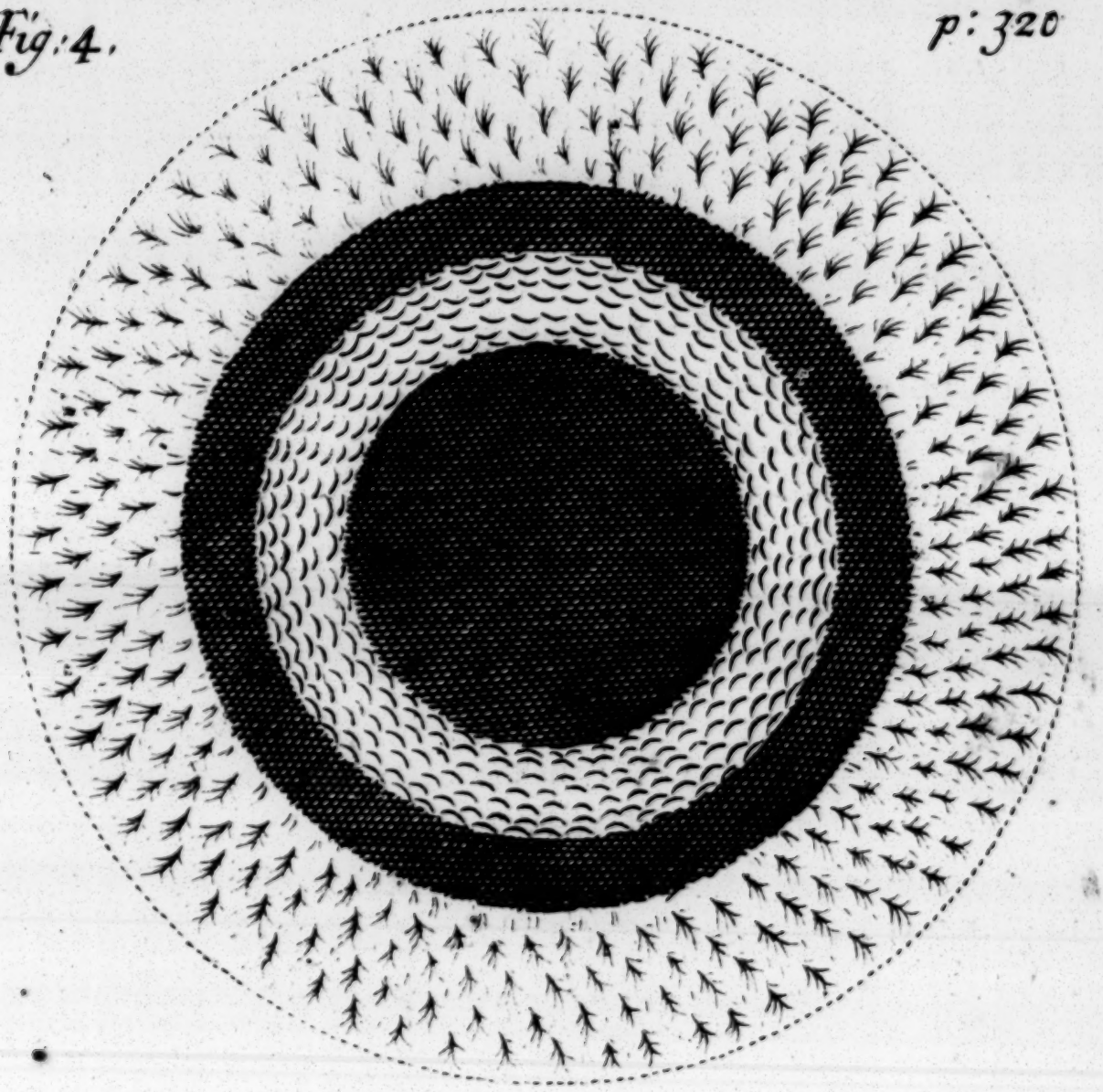
purify'd Air, and ſo increaſe the vaſt Quantities which were already there; while in the mean time all the Earthy Corpuſcles which were uncapable of Rarefaction, and with them all ſuch Watery Particles as were ſo near the Earth that the Sun's Power could not ſufficiently reach 'em, were ſtill ſinking downwards, and the former increaſing the Craſſitude and Bulk of the Solid Earth; and the latter, if the Earth was too ſolid to admit them, as by this time it would probably be, flowing down apace, and covering all its Surface with Water. From all which, 'tis eaſy to account for the Particulars of this Day's Work. The *Expanſum* or Firmament which was this Day ſpread out above the Earth, was plainly the *Air*, now truly ſo called, as being freed from moſt of its Earthy Mixtures. The *Superior-Waters*, all thoſe freſh ones, which in the Form of Vapour, a nine or ten Months Heat of the Sun, with the continual Aſſiſtance of the Central Heat, could elevate, and the Air ſuſtain, beſides thoſe vaſt Quantities of Salt ones, which had never yet left thoſe Regions. The *Inferior Waters* were thoſe which were not elevated, but remain'd below, all that fell down with, were enclos'd in, ſunk into, or lay upon the Orb of the Earth beneath. And when it is particularly ſaid by *Moſes* that 'twas this *Expanſum* or Firmament which was to divide the *Superior* from the *Inferior* Waters, that is exactly agreeable to the Nature of Things, and ſuitable to this Account: It being the *Air* which truly and properly ſuſtain'd all thoſe Vapours, as now it does the Clouds, above the Earth; and was thereby the Means of ſeparating them from their Fellows in the Bowels, or on the Surface thereof. Neither has that Objection any weight in it, that the Waters in the Seas are call'd by *Moſes*, *Waters*

under

under the Firmament, and ſo muſt be of a different nature and original from thoſe in the Air, which are *Waters above the Firmament*; whereas I derive the one from the other, and ſuppoſe the Seas to have once been Vapour, and ſo part of the other Waters. For, certainly, if Vapours in the Air, or *Waters above the Firmament* fall down, become properly *Water*, and run down into the Seas, they muſt be allow'd to change their Name, and become *Waters below the Firmament*: I am ſure this Change is no new thing, but has been continual from the Creation till our times. Every Day Vapours become Rain, and run into Seas; and the Seas are every Day reſolving into ſmall Parts, and become Vapours; and ſo the *inferior* and *ſuperior* Waters ſtill communicate with and ſupply each other, and accordingly change their Denomination perpetually: Which State of the *Chaos*, or Progreſs of the Creation, is well repreſented in the *Theoriſt*'s Fourth Figure; which here follows. Theor. p. 39.

Corol-

Fig. 4. *p. 320*



Corollary 1. *Hence appears a ſufficient Reaſon why in this Six Day's Creation one entire Day is allow'd to the Formation of the Air, and the diſtinguiſhing the Waters in the ſame, from thoſe beneath; which has hitherto ſeem'd ſomewhat ſtrange and diſproportionate. 'Tis certain this Work requir'd as long a time, and was of as great importance as any other whatſoever: A great part of that Water which the Earth was to have in its Air, or upon its Surface, till the Deluge, being, 'tis probable, entirely owing to this Day's Elevation of it. For had it not been thus buoy'd up and ſuſtain'd on high, it muſt have ſunk downward,*

ward, and ſo perhaps have been incloſed in the Bowels of the Earth, without poſſibility of Redemption; *and have rendred the* Antediluvian *World more like to a dry and barren* Wilderneſs, *than, what it was to exceed, a juicy, fruitful and habitable* Canaan.

Coroll. 2. *Hence ariſes a new Confirmation that the* Days *of the Creation were* Years *alſo. For ſeeing the quantity of Water which was preſerv'd above Ground, and fill'd all the Seas before the Deluge, was in great part the ſame which was this ſecond* Day *elevated into Vapour; had this* Day *been no longer than one of ours at preſent, the forementionꝰd quantity would have been too little to ſaturate the Earth, ſupply the Rivers, and fill all the Seas, and about an half of it every* Day *would be wholly exhal'd afterwards, and ſuffer the Vegetable and Animal Kingdoms to faint and wither, if not to periſh for want of Moiſture. All which, in the* Hypotheſis *we here take, is wholly avoided, and a very fit and ſuitable proportion of Waters preſerv'd above for all the neceſſities of the Earth, with its Productions and Inhabitants.*

VII. The viſible Parts of the Third Day's Work were two, the former the Collection of the *inferior* Waters, or ſuch as were now under the Heaven, into the Seas, with the conſequent Appearance of the dry Land; the latter the Production of Vegetables out of that Ground ſo lately become dry.

VII. In order to the apprehending of the *double* operation of this Day, we muſt call to mind what ſtate the Orb of Earth was in by this time. We have ſeen already that it had been ſettling together, and fixing it ſelf on the Surface of the Abyſs from the very beginning of the Creation; and we ought to ſuppoſe that in the ſpace of two Years it was not only become wholly diſtinct from the Abyſs below, and the Atmoſphere above it, but that it was ſettled and con-

ſolidated together, and its *Strata* grown firm and compacted. Nay that it was by the coheſion of its Parts, grown ſolid ſome time before all the lighter and remoter Earthly Parts were deſcended upon it, as ſuppoſe by the end of the firſt Day. We muſt farther obſerve, that by reaſon of its Columns different Denſity, and Specifick Gravity, (atteſted to, *à priori* from the *Chaos*'s, and *à poſteriori* from the internal Earth's *Phænomena*,) it was ſettled into the Abyſs in different degrees, and thereby became of an unequal Surface diſtinguiſh'd into Mountains, Plains and Vallies. I ſay it was *ſettled into the Abyſs in different degrees*, but yet not near to ſuch a degree as the law of Specifick Gravity requir'd, as neceſſarily follows from what was now ſaid, that the ſeveral Columns would be conſolidated together the firſt Day, before all the lighter and remoter Earthly Parts which were to compoſe it were deſcended upon it on the Second, and perhaps afterwards alſo on part of the Third. Which things being ſuppos'd and conſider'd, the two Works of this Day or Year of the Creation, which are of themſelves very different, will be eaſily underſtood and reconcil'd. For when at Sun-ſet, or the Concluſion of the laſt Day, we left the Air by the nine or ten Months Power of the Sun elevating freſh ones, and by the great quantity of ſalt ones ſtill remaining there from the beginning, crowded with Vapours to a prodigious degree; upon the coming on of this Third Day, and in its Night or former part, the ſaid vaſt Quantities of Vapours muſt needs deſcend, and ſo by degrees muſt leave the Air pretty free, and take their places on the Surface of the Earth; altering thereby their own denomination, and becoming of *Upper* or *Celeſtial*, *Lower*

Vid. Lem. 81. cum Coroll. & Hypoth. 2. prius.

Lower or *Terreſtrial* Waters. Indeed if we do but allow the effect to be in any meaſure anſwerable to the Time, we ſhall grant that in the two or three Months of Night, which is the former part of this Third Period of the Creation, the main Body of the Vapours muſt have not only deſcended down upon the Earth, but, by reaſon of the inequality of its Surface, and the Solidity withal, have run down from the higher and more extant Parts, by the Declivites and Hollows, into the loweſt Vallies, and moſt depreſſed Regions of all ; muſt in theſe places have compos'd the Seas and Lakes every where throughout the Surface of the Earth ; and ſo by that time the Light appear'd, and the Sun's riſing began the latter part of this Day, the entire face of the Globe, which was juſt before cover'd as it were with the deſcending Waters, muſt be diſtinguiſh'd into over-flow'd Vallies, and extant Continents, into Seas and dry Lands, that very Work of this Day we were in the *firſt* place to enquire about. *The Waters under the heavens were* now *gathered together into* their reſpective and diſtinct *places, and the dry land appear'd* and became fit for the Production of the Vegetable Kingdom. Which therefore moſt naturally leads us to the *ſecond* Branch of this Day's Work : For when thus far was compleated on the Night or former part of this Day ; (which the Abſence of the Sun ſo long together rendred peculiarly and ſolely fit to permit and procure the deſcent of Vapours ;) and when at the ſame time the dry Land was now diſtinguiſh'd from the Seas, and juſt become (in the utmoſt degree) moiſt and juicy ; upon the Sun-Riſing or coming on of the Day-time, 'twas of all other the moſt fit and convenient Seaſon for the Germination of the Seeds of Vegeta-

bles and the growth of Trees, Shrubs, Plants and Herbs out of the Earth. The Soil, ſatur'd and fatned by the foregoing half Year's deſcent of Vapours, was now like the Ἰλὺς, that fruitful Seminary of the Vegetable and Animal Productions of Primitive Nature, ſo much celebrated by all Antiquity. Nine or Ten Months of the Sun's preſence together, was a time as proper and as natural for ſuch a purpoſe as could poſſibly be deſir'd. And when there was this Nine or Ten Months Day to ſpare in this Period of the Creation, after one Work was compleated; and the ſame was ſo very fitly prepar'd and diſpos'd for the Production of Vegetables; 'tis no wonder that this above all the other Diviſions has a double Task, and that the Seas and dry Land were diſtinguiſh'd, and the Vegetables produc'd on the ſame Day or Year of the Creation; according as from the *Moſaick* Hiſtory the preſent Propoſition aſſerts. And if we allow for the defect of the inequalities of the outward Surface, too ſmall to be therein conſider'd; and ſuppoſe the *Atmoſphere* ſomewhat clearer than before; the former Figure will ſtill ſerve well enough, and repreſent the progreſs and ſtate of the Earth at the Concluſion of this *Third Day* alſo.

Theor. l. 1. p. 42. & l. 2. c. 7.

Theor. p. 39. & *ſupra.*

Corollary 1. *Since according to our preſent Accounts of theſe Matters, this is the only day of the Creation to which a double work, and that the one quite different from the other, ought to be aſcrib'd, and is aſcrib'd by* Moſes; *The* Night *being peculiarly fit for the former, and the* Day *for the latter Operation; which could happen on none of the other Periods; This exactneſs of correſpondence ought to be eſteem'd an Evidence of the literal Senſe of the Writer, and of his Accommodation to the nature of things;*

and

and a very conſiderable confirmation of thoſe Hypotheſes *on which it ſo naturally depends.*

Coroll. 2. *Hence ariſes a Confirmation of what was before aſſerted, that the* Antediluvian *Earth had only leſſer Lakes and Seas, not a vaſt Ocean. For ſince the Quantity of Waters belonging to the Earth and Air at firſt, was little more than was at once ſuſtain'd by the Air; no one will imagine it ſufficient to fill the entire Ocean alone, if there had been neither leſſer Seas, nor Rivers to be ſupply'd therewith. And ſo,* vice versâ, *It having been prov'd by other Arguments, that there was no Ocean, but only leſſer Seas, before the Flood, This Account which affords ſufficient quantity of Water for the latter, but not for the former, is thereby not a little confirm'd.* Phænom. 45. *prius.*

Coroll. 3, *Tho' the Heat and Influence of the Sun was on this Third Day very great, yet was his Body not yet Viſible. For ſince at his Riſing the Earth and loweſt Regions of the Air were very full of moiſture, while the higher Regions were very clear and bright, the force of his heat would be ſo great as to elevate conſiderable quantities of Vapours on a ſudden, and thereby (e're the loweſt Air had depoſited its Vapours, and rendred it ſelf tranſparent) the Sun would anew hide himſelf in a thick Miſt, and ſo prevent his own becoming conſpicuous, which otherwiſe 'tis not improbable he might this Day have been.*

VIII. The Fourth Day's Work was the Placing the Heavenly Bodies, Sun, Moon, and Stars, in the *Expanſum* or Firmament. *i. e.* The rendring them Viſible and Conſpicuous on the Face of the Earth: Together with their ſeveral Aſſignations to their reſpective Offices there.

VIII. Altho' the Light of the Sun penetrated the Atmoſphere in ſome ſort the firſt Day, and in the ſucceeding ones had very conſiderable in-

fluence upon it; yet is it by no means to be ſuppos'd that his Body was Viſible all that while. Tho' we every Day enjoy much more Light and Heat from the Sun than the Primitive Earth could, for a conſiderable ſpace, be ſuppos'd to have done, yet 'tis but ſometimes that the Air is ſo clear as to render his Body diſcernible by us. A very few Clouds or Vapours gather'd together in our Air are able, we ſee, to hinder ſuch a proſpect for Weeks, if not Months together; while yet at the ſame time we are ſufficiently ſenſible of his Force and Influence in the conſtant Productions of Nature. Which things being duly conſider'd, and the vaſtneſs and denſity of the *Upper Chaos* allow'd for, 'twill be but reaſonable to afford a great ſpace, even after the firſt penetration of Light, for the entire clearing of the Atmoſphere, and the diſtinct view of the Sun's Body by a Spectator on the Surface of the Earth. I ſuppoſe no one will think the two firſt *Days* or *Years* of the Creation too long for ſuch a Work; or if any one does, the particular Work and State of the Atmoſphere on the ſecond Day will prevent—the moſt probable part of ſuch a Surmiſe, and ſhew the Impoſſibility of the Sun's Appearance at that time. And the ſame reaſon will in a ſufficient, tho' a leſs degree prevent any juſt Expectations on the *third Day*, as was obſerv'd in the laſt *Corollary*. But now upon the coming on of this *fourth Day*, and the Sun's deſcent and abode below the Horizon for two or three Months, thoſe Vapours which were rais'd the Day before muſt fall downwards, and ſo before the approach of the Morning leave the Air in the greateſt clearneſs and purity imaginable, and permit the *Moon* firſt, then the *Stars*, and afterward, upon the coming on of the Day,

Day, the *Sun* himſelf moſt plainly to appear and be conſpicuous on the face of the Earth. This *fourth Day* is therefore the very time when, according to this Account, and the ſacred Hiſtory both, theſe Heavenly Bodies, which were in being before, but ſo as to be wholly Strangers to a Spectator on Earth, were rendred viſible, and expos'd to the view of all who ſhould be ſuppos'd to be there at the ſame time. They now were in the Sacred Stile, *placed in the Firmament of Heaven, gave Light upon the Earth*; began to *rule* plainly and viſibly *over the Day, and over the Night, and to divide the Light from the Darkneſs*; as ever ſince they have continu'd to do. And now the inanimate World, or the Earth, Air, Seas, and all their Vegetable Productions are compleat; and the Tradition of thoſe *Chineſes* who inhabit *Formoſa*, and other Iſlands, appears well-grounded, and exactly true, who hold, That the World, when firſt created, was without Form or Shape; but by one of their Deities was brought to its full Perfection in four Years. And certainly this entire Conſtitution of the whole correſponds excellently with the Poet's Deſcription of it, which is alſo a ſurprizing Teſtimony to the whole *Hypotheſis* hereto relating:

Atlas Chi. Part. 2. p. 46. Apud War. Geolog. p. 58.

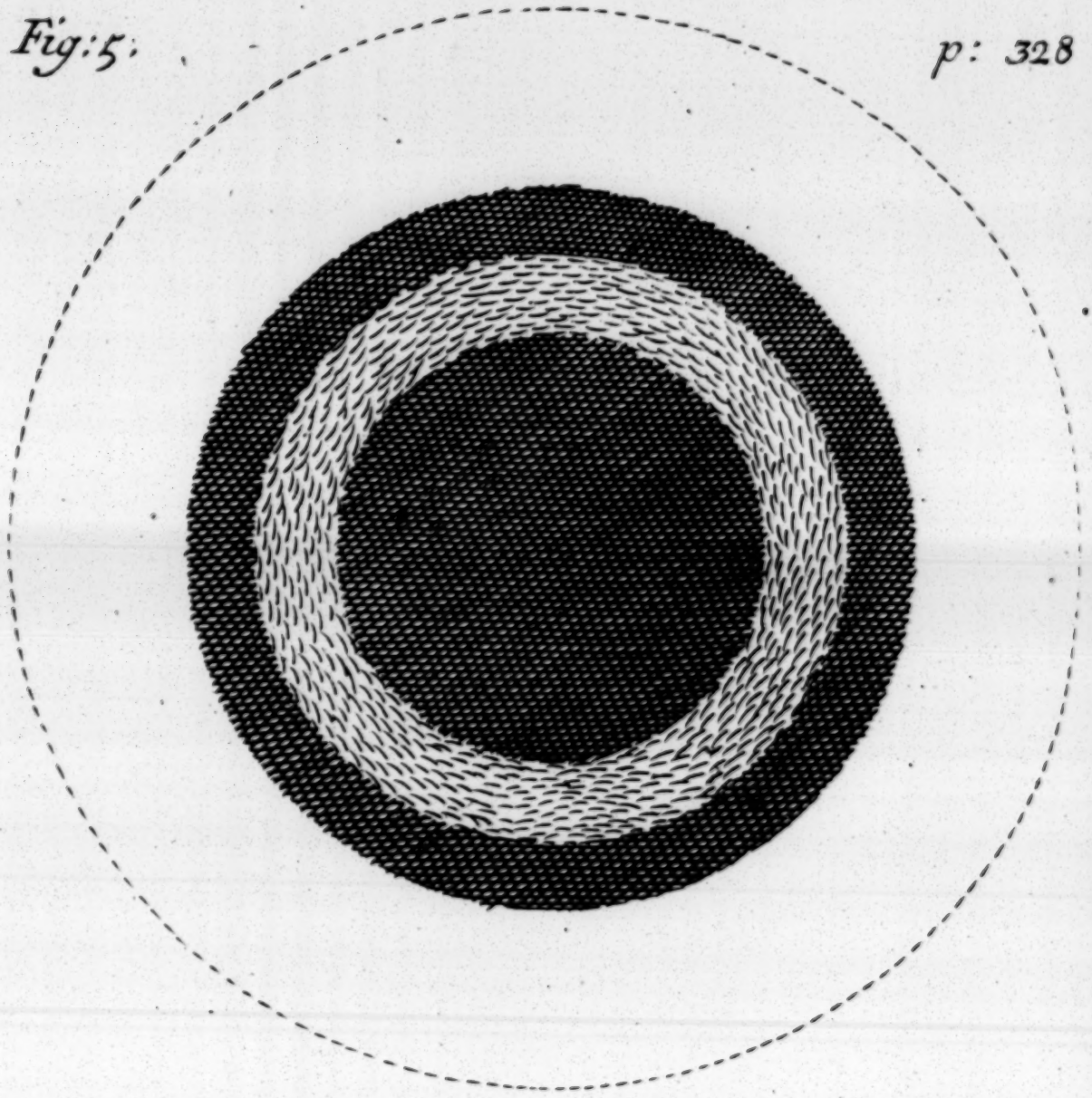
Ignea Convexi vis, & ſine pondere Cœli
Emicuit, ſummaque locum ſibi legit in arce:
Proximus eſt aer illi gravitate locoque:
Denſior his Tellus, Elementaque Grandia traxit,
Et preſſa eſt gravitate ſui: Circumfluus Humor
Ultima poſſedit, ſolidumque coercuit orbem.

Ovid. Met amorph. 11.

Which Progreſs of the Creation, and State of Nature is exactly repreſented by the *Theoriſt*'s fifth and laſt Figure; which therefore here follows.

Theor. p. 41.

Fig: 5. *p: 328*



IX. The Fifth Day's Work was the Production of the Fiſh and Fowl out of the Waters; with the Benediction beſtowed on them in order to their Propagation.

IX. The Terraqueous Globe being now become habitable both to the Swimming and Volatile Animals, and the Air clear, and ſo penetrable by that compleat Heat of the *Sun*, which was requiſite to the Generation of ſuch Creatures; 'tis a very proper time for their Introduction. Which was accordingly done upon this fifth *Day* or *Tear* of the Creation. Thoſe Seeds, or little Bodies of

Fiſh and Fowl which were contain'd in the Water, (or moiſt fruitful Ἰλὺς, of kin to it) were now expos'd to the kindly Warmth of the *Sun*, and the conſtant ſupply of a moſt gentle and equal Heat from beneath; they were neither diſturb'd by the ſudden Alteration of the Temperature of the Air from the Violence of Winds, nor by the Agitations of the Tide, (which was both very ſmall in theſe ſmall Seas; and by reaſon of the abſence of the *Diurnal Rotation*, imperceptibly eaſy, gentle, and gradual;) theſe Seeds, I ſay, when invigorated with the Divine Benediction, became now prolifick; and in this Fifth Day's time, a numerous Offspring of the ſwimming and volatil Kinds aroſe, whereby the two fluid Elements, Water and Air, became repleniſh'd with thoſe firſt Pairs, which by the Benediction they ſtraightway receiv'd, were enabled to become the Original of all of the ſame Kinds, which ever were to be the Inhabitants of thoſe Regions afterwards. Which Time and Procedure is no leſs agreeable to the State of the World in our *Hypotheſis*, than 'tis to the expreſs Affirmations of *Moſes*, who makes Fiſh and Fowl the ſole Product of the Fifth *Day* or *Year* of the Creation.

X. The Sixth Day's Work was the Production of all the Terreſtrial or Dry-Land Animals; and that in a different manner. For the Brute Beaſts were produced out of the Earth, as the Fiſh and Fowl had been before out of the Waters: But after that, the Body of *Adam* was formed of the Duſt of the Ground; and by the Breath of Life breath'd into him in a peculiar manner, he became a Living Soul. Some time after which, on the ſame Day, he was caſt into a deep Sleep, and *Eve* was form'd of a Rib taken from his ſide. Together with ſeveral other things, of which a more particular Account has been already given on another Occaſion.

X. The

X. The Earth being now grown more ſolid, compact, and dry, its Surface diſtinguiſh'd into Sea and Dry-land, each of which were ſtor'd in ſome ſort with Inhabitants and Vegetables, the Air being fully clear, and fit for Reſpiration, and the other Diſpoſitions of external Nature being equally ſubſervient to this, as well as it had been before to the laſt Day's Productions; 'twas a proper Seaſon for the Generation of the *Dry-land Animals*, and the Introduction of the nobleſt of them, *Man*; which accordingly were the firſt Works, on this Sixth *Day* or *Year* of the Creation. Any more particular Account of which, or of the following Works, is not ſo directly the Deſign of this *Theory*, and ſo ſhall not be here farther inſiſted on. We may only take notice of two Things; the one is the peculiar *Manner*; the other the peculiar *Time* for the Creation of Man. As to the *former*, tho' 'tis granted that all the other Day's Works mention'd by *Moſes*, were generally brought to paſs in a natural way, by proper and ſuitable Inſtruments, and a mechanical Proceſs, as we have ſeen through the whole *Series* of the foregoing Creation; yet 'tis evident, as has been already obſerv'd, that an immediate and miraculous Power was exercis'd in the Formation of the Body, and Infuſion of the Soul of Man, as well as in ſome other particular Caſes belonging to this Origin of Things. In plain Terms, I take it to be evident, that the ſame Λόγος Θεάνθρωπος, our Bleſſed Mediator, who was afterward very frequently converſant on Earth, appear'd in a human Form to the Patriarchs, gave the Law in a viſible Glory, and with an audible Voice on Mount *Sinai*, guided the *Iſraelites* perſonally in a Pillar of Fire, and of a Cloud through the Wilderneſs, inhabi-

Solut. 2, prius. Vid. John i. 18. and v. 37. and vi. 45, 46. Matth. xi. 27, 1 John iv. 12. Rom. i. 20. Col. i. 15. 1 Tim. i. 17. and vi. 15, 16, with Exod iii. and xix.

ted

ted between the *Cherubins* in the Holy of Holies, and took the peculiar Stile, Title, Attributes, Adoration, and, to others, incommunicable Name of the God of *Iſrael*, and at laſt was Incarnate, liv'd truly like a Man amongſt us, died for us, and aſcended into Heaven, makes ſtill Interceſſion for us with the Father, and will come to judge the World in Righteouſneſs at the laſt Day: That this very ſame Divine Perſon was actually and viſibly, in a Human Shape, and converſant on Earth, and was truly and really employ'd in this Creation of the World, (and particularly in this peculiar Formation of Man) ſo frequently aſcrib'd to him in the Holy Scriptures. It being both unfit and impoſſible for the Divine Nature of the Father, to be ſo much, and in ſuch a manner concern'd with the Corporeal World, and the ſinful Race of Mankind, as we find here and every where this *Divine Perſon*, our Bleſſed Mediator, to have been; as the Texts here quoted compar'd together do, I think, fully prove. Seeing, therefore, our Saviour Chriſt, God-Man, was perſonally preſent, and actually employ'd in this Primitive Creation of the World: Seeing Man was to be a Creature entirely different from all the reſt, a Being compounded of a Spiritual and Immortal Soul, and of a Material and Corruptible Body: Seeing in both theſe he was to be made in the Likeneſs of that Divine Perſon who was the Inſtrument of the Father in his Creation, and to be conſtituted his Deputy and Vicegerent among the Creatures here below; 'twas but reaſonable there ſhould be as great a Diſtinction in his Original, as was to be in his Nature and Faculties, his Office and Dignity, his Capacities and Happineſs from the other Parts of the viſible Creation; and by conſequence, that peculiar Interpo-

and xx. and xxiv. 10, 11. and xxxiii. 9, 10, 11, 12, 13. Numb. xii. 5, &c. and xiv. 14. Gen. ii and iii. and xviii. and xix. and xxxii. 24, &c. Deut. iv. and v. Vid Prov. viii. 22. 32. Heb. i. 1, 2. with xi. 3. Col. i. 14, 15. 16, 17. John i. 1, 2, 3. Heb. i. 10, 11, 12. Euſeb. Hiſt. Eccleſ. 1. c. 1, 2.

terpoſition of God himſelf in the Formation of the Body, and Infuſion of the Soul of our firſt Parents, ſo particularly obſervable in the *Moſaick* Hiſtory, is both very agreeable to the Nature of Things, very ſuitable to the Wiſdom of God, and very reconcileable to the moſt Philoſophick Accounts of this Origin of the World; and withal, a remarkable Token of the Dignity of Human Nature, of the Diſtinction between his Soul and Body, and of the great Condeſcenſion and Love of God towards us, and ſo the moſt highly worthy of our Conſideration. Neither is the other Circumſtance, the peculiar *Time* of the Creation of Man, to be paſs'd over without a proper Reflection on it. 'Twere eaſy to ſhew, that none of the preceding Days were, in any degree, ſo fit for, nay, moſt of them, not capable of this Creation and Introduction of Man: But upon this Sixth Period, when every thing which could be ſubſervient to him, and advance his Felicity, was compleated; He who was to be the Lord of All, and for whoſe ſake the whole was fram'd, was brought into the World. When the *Light* had been penetrating into, and clarifying this dark and thick *Atmoſphere* for more than five compleat *Years* together; when the Air was freed from its numberleſs Vapours, and become pure, clear, and fit for his Reſpiration; when the *Waters*, as well *ſuperior* as *inferior*, were ſo diſpos'd as to miniſter to his Neceſſities by Miſts and Dews from the Heavens, and by Springs and Rivers from the Earth; when the *Surface of the Earth* was become dry and ſolid for his Support, and was cover'd over with Trees, Shrubs, Plants, Herbs, Graſs and Flowers for his Suſtenance and Delight; when the glorious *Firmament of Heaven*, and the beautiful Syſtem of the *Sun*, *Moon* and *Stars*, were

were viſible and conſpicuous to him, the Objects of his Contemplation, the Diſtinguiſhers of his Seaſons; by whoſe powerful Influences the Earth was invigorated, and the World rendred a fruitful and uſeful, a lightſome and pleaſant Habitation to him; when, laſtly, *all ſorts of Animals* in the *Seas*, in the *Air*, or on the *Earth*, were ſo diſpos'd as to attend, benefit, and pleaſe him one way or other; when, I ſay, all theſe things were by the Care, Beneficence, and Providence of God, prepar'd for the Entertainment of this principal Gueſt, then, and not till then, was *Man* created and introduc'd into the World: Then, and not before, was *He* conſtituted the Lord and Governor of the whole. In which entire Procedure the Wiſdom and Goodneſs of the Creator, and the Dignity and Honour of his principal Creature here below, are equally conſulted; and the greateſt Occaſion imaginable given to our firſt Parents, and all their Poſterity, of adoring and celebrating the Divine Bounty to them in the preſent and ſucceeding Ages. Which naturally leads us to the next Propoſition.

XI. God having thus finiſh'd the Works of Creation, Reſted on the Seventh Day from the ſame; and ſanctified or ſet that Day apart for a Sabbath, or Day of Reſt, to be then and afterward obſerv'd as a Memorial of his Creation of the World in the Six foregoing, and of his Reſting or Keeping Sabbath on this Seventh Day. Which Sabbath was reviv'd, or at leaſt its Obſervation anew enforc'd on the *Jews*, by the Fourth Commandment.

XI. Nothing ſure could be more fit and proper at this time than the praiſing and worſhipping of that powerful and munificent Creator, who in the foregoing Six Days Productions had ſo operouſly and ſo liberally provided for the Well-

Well-being and Happineſs of Mankind. And ſeeing this entire Fabrick was deſign'd for the Uſe and Advantage of all ſucceeding Generations, as well as the preſent, it could not but be reaſonable to devote one Period in ſeven to the peculiar Worſhip and Service of that God who was both the Author of the Works themſelves, and of this Inſtitution of the Sabbath, to perpetuate the Memory of ſuch his Six Days of Work, and of this Seventh of Reſt, to all future Generations. What relates to the Fall of *Adam*, and the entire Moral State of the World, comes not within the Compaſs of this Phyſical *Theory*, and ſo (notwithſtanding it naturally enough belongs to this Day, and might, I imagine, be ſhewn not to be ſo difficult, as, for want of a right Underſtanding thereof, 'tis uſually imagin'd to be, and that without receding from the literal, obvious, and uſual Senſe of Scripture) muſt be wholly omitted in this Place.

XII. There is a conſtant and vigorous Heat diffuſed from the Central towards the Superficiary parts of our Earth.

Lem. 68. & Hyp. 1. Arg. 7. prius.

XII. This has been already accounted for, and need not here be reſum'd.

XIII. The habitable Earth is founded or ſituate on the Surface of the Waters; or of a deep and vaſt ſubterraneous Fluid.

Lem. 74, &c. & Solut. 5, 6, 7. prius.

XIII. This has been ſufficiently explain'd already, and is obſervable in the foregoing Figures of the four latter Periods of the *Moſaick* Creation. But if it be requir'd to ſtate the Proportions of that Subterraneous Fluid, with that of the Central Solid, and of the Upper Earth, I muſt ſay, that I eſteem the Upper Cruſt to be not above 50 or 100 Miles deep, and the Denſe Fluid about the like Dimenſions: But as to the larger Central Solid,

Solid, which includes another rarer Fluid, and a Central *Loadſtone*, as I have ſhewn in my *Diſcovery of the Longitude and Latitude by the Dipping-Needle*, this is not a place to diſcourſe more largely upon it.

XIV. The interior or entire Conſtitution of the Earth is correſpondent to that of an Egg.

XIV. This is alſo very eaſily obſervable in the ſame Figures: Where (1.) the *Central Solid* is anſwerable to the *Yolk*; which, by its fiery Colour, great Bulk, and innermoſt Situation, exactly repreſents the ſame: Where (2.) the great *Abyſs* is analogous to the *White*; whoſe Denſity, Viſcoſity, moderate Fluidity, and middle Poſition, excellently expreſs the like Qualities of the other: Where (3.) the *upper Orb*, or habitable Earth, correſponds to the *Shell*, whoſe Lightneſs, Solidity, little Inequalities of Surface, and uppermoſt Situation, admirably agree to the ſame.

XV. The primitive Earth had Seas and Dry-land diſtinguiſh'd from each other in great meaſure as the preſent; and thoſe ſituate in the ſame places generally as they ſtill are.

XV. The former part of this has been already ſufficiently explain'd; and of the latter part there can then be no reaſon to make any queſtion; ſince the ſame Earth that was made at firſt, does ſtill, as to its main Parts, remain as it was to this Day. Solut. 7. prius.

XVI. The primitive Earth had Springs, Fountains, Streams, and Rivers, in the ſame manner as the preſent, and for the main uſually in or near the ſame places alſo.

XVI. The Origin of Fountains and Rivers is undoubtedly either from Vapours deſcending from *without* the Surface of the Earth, or from Steams elevated by the heat *within*. And which way

way ſoever we chuſe to ſolve the preſent, 'twill alſo ſerve to ſolve the Primitive *Phænomena* here mention'd. 'Tis only to be obſerv'd, that before the upper Earth was chap'd and broken at the commencing of the *Diurnal Rotation*; and, indeed, before the *Strata* became ſo firmly conſolidated as they afterwards were, the ſubterraneous Steams would ariſe, and paſs through the ſame more uniformly, and more eaſily, and ſo more equally diſpenſe their Waters over every Part and Region of the Earth, than afterward.

Eſſay, p. 121, &c. and p. 152.

Corollary. *If therefore Dr.* Woodward *be right in aſſerting, That the Cracks and* Fiſſures, *which he calls* perpendicular *ones, ſince the entire Conſolidation of the* Strata *of the Earth, are neceſſary to the Origin of Springs,* (*and I believe he may have good Grounds for his Opinion;*) *From the Being of ſuch Springs and Fountains after the Conſolidation of the* Strata, *and before the Flood, 'tis evident, that the* Diurnal *Motion did not commence till after the* Annual; *nay, till after the Formation and Conſolidation of the Earth, and ſo what on* other *Grounds was before rendred highly probable, will appear nearer to Certainty on* This: *For 'tis plain, if the preſent* Diurnal *Motion commenc'd either with the* Annual, *or indeed any time before the Formation of the Earth, the Figure of the* Chaos, *and ſo of the* Abyſs *and Upper Earth, would originally be that of an* Oblate Sphæroid, *as it is now; the* Strata *would be all coherent, united, and continued, without any Cracks or* perpendicular Fiſſures *at all; and the Origin of Springs, on the* Doctor's *Grounds, muſt, in a natural way, be plainly impoſſible. Since therefore the* Diurnal Rotation's *commencing after the Conſolidation of the* Strata *gives a Mechanical and Natural Account of the Chaps and* perpendicular Fiſſures; *ſince without the ſame in the preſent Caſe no natural*

Vid. Lem. 70, 71, 72. prius.

Cauſe

Cauſe of them is by any aſſigned; ſince withal 'tis unqueſtionable that there were Springs and Rivers before the Flood; and ſince, laſtly, it appears that ſuch Fiſſures were neceſſary to the being of thoſe Springs and Rivers, 'tis very reaſonable, nay, neceſſary to ſuppoſe, that the Diurnal Rotation *did not commence till after the Formation and Conſolidation of the Earth was over; or, which is almoſt all one, till the Fall of Man, as we formerly aſſerted.* Hypoth. 3. prius.

XVII. The Primitive Earth was diſtinguiſh'd into Mountains, Plains and Vallies, in the ſame manner, generally ſpeaking, and in the ſame places as the preſent.

XVII. This has been ſufficiently explain'd already, and need not here be reaſſum'd. And that each of theſe Seas, Springs, with their Rivers, and Mountains, were generally the ſame, and in the ſame Places as the preſent, there is no reaſon to doubt; they being uſually the very ſame Indivlduals then and now, and ſo unqueſtionably cannot have chang'd their primary Situations. Lem. 74. &c. and Solut. 7. prius.

XVIII. The Waters of the Seas in the Primitive Earth were *Salt*, and thoſe of the Rivers *Freſh*; as they are at preſent, and each, as now, were then ſtor'd with great Plenty of Fiſh.

XVIII. This has no Difficulty in it, ſeeing the preſent Seas are either the very ſame, or at leaſt of the ſame nature; and both would become ſalt in the ſame manner, by the Diſſolution of the Saline among the other Mineral Particles in the Fluid *Chaos*, or Atmoſphere of a Comet. As to the Rivers, they aroſe then and now in the ſame manner; and the Inhabitants of the preſent Seas and Rivers ſeem to be no other than the Spawn or Offspring of thoſe primitive ones.

XIX. The Seas were agitated with a like *Tide*, or *Flux* and *Reflux*, as they are at preſent.

Lem. 82. cùm Corol. priùs.

XIX. The preſence of the *Moon* and *Sun* being the cauſe of the Tides, and thoſe Bodies by conſequence being equally diſpos'd before, as ſince the Deluge, to produce them, this Propoſition can have no manner of difficulty, Only we may take notice of theſe two things, (1.) That in the State of Innocence, before the Diurnal Revolution began, the frequency of the Tide muſt depend on the *Lunar* Period, and happen but twice in each Month, as now it does in ſomewhat above a Day's time with us: On which account, the Increaſe and Decreaſe of the Waters would be extreamly gentle, leiſurely, and gradual, without any imaginable Violence or Precipitation. (2.) That in the whole *Antediluvian* State, the Tides were leſſer than ſince, by reaſon of the ſmallneſs of the Seas *then* in compariſon of the great Ocean, from whence *now* the moſt conſiderable ones are deriv'd. All which yet hinders not but they might be ſenſible enough in ſome Creeks, Bays, and Mouths of Rivers: The peculiar Circumſtances of thoſe Places in *that*, as well as in the *preſent* State, rendring the Tides, the Elevations and Depreſſions of the Waters *there*, moſt conſiderable and violent of all others.

XX. The Productions of the primitive Earth, as far as we can gueſs by the remainders of them at the Deluge, differ'd little or nothing from thoſe of the preſent, either in Figure, Magnitude, Texture of Parts, or any other correſpondent reſpect.

XX. Theſe things ſeem to depend on two particulars, *viz.* partly on the primary Bigneſs, Figure, and Conſtitution of the conſtituent, inſenſible Parts or Elements of Bodies; and partly on the quantity of Heat made uſe of in their Pro-

Production or Coalition; which being ſuppos'd, the Propoſition will eaſily be eſtabliſh'd. For, as to the firſt, I ſuppoſe they remain invariably the ſame in all Ages, and are by any natural Power unalterable. And as to the laſt, whatever is to be ſaid of the State of Innocence, or the firſt Ages ſucceeding, on ſome peculiar Accounts, which I believe might be warmer than at preſent; yet as to the Times here referr'd to, there is no need to ſuppoſe any great Difference of Heat, either from the *Sun*, or the Central Body: And, indeed, all the Difference on any accounts to be ſuppos'd between the Heat before and ſince the Deluge, muſt be too inconſiderable to be taken notice of in any ſuch ſenſible Effects as this Propoſition does refer to. For the *Sun*'s heat was not above a Twenty fifth part greater than 'tis now, and the Space of four or five thouſand Years makes no mighty difference in that of the Central Solid, if at firſt it were heated any whit near the degree mention'd in the Calculation referr'd to in the Margin. And tho' its real Heat were decreas'd, yet in caſe its Facility of Penetration were increas'd in the ſame Proportion, the Heat on the Face of the Earth would ſtill be equal and invariable. And ſo by theſe Accounts, the Productions of Nature in all Ages muſt be pretty equal and agreeable, as this Propoſition requires.

Phænom. 23. & 27. priùs.

Lem. 68. priùs.

Corollary. *Tho' the Lives of the* Antediluvians *were ſo much longer than ours at preſent, yet were they not generally of a more Gigantick Stature than the paſt or preſent Generations ſince have been. In all which Ages, notwithſtanding, there have been ſome of an extraordinary Bigneſs and Stature, and there will be ſtill no doubt in the future Ages to the end of the World.*

XXI. The Primitive Earth had ſuch *Metals* and *Minerals* in it, as the preſent has.

XXI. This is eaſily accounted for. For ſince the *Antediluvian*, and the preſent Earth, are either the very ſame as to the lower Regions, or at leaſt of the ſame Nature, the Offspring of a Comet's *Atmoſphere*, (as even that acquir'd Cruſt at the Deluge was) 'tis no wonder if each of them contain, generally ſpeaking, the ſame *Species* of Bodies within it.

XXII. Arts and Sciences were invented and improved in the firſt Ages of the World, as well as they ſince have been.

XXII. There is little need of giving particular Reaſons for this. All I ſhall obſerve is, That ſeeing the Ignorance and Barbarity of the Ages after the Deluge, is the greateſt Objection againſt this Propoſition, 'tis avoided in our *Hypotheſis*. The inſenſible, tho' prodigious Change of the State of Nature, and the periſhing of moſt of the Monuments of the old Learning or Arts at the Flood, with the want of Correſpondence in the *Poſtdiluvian* Tropical Year, to the Tradition of the *Antediluvian* one, compelling the few remainders of the former State, being only eight in number, to ſeek anew for their Learning, notwithſtanding it might have been cultivated and improv'd to a great degree before the Deluge; as therefore in all probability it really was.

CHAP.

CHAP. II.

A Solution of the Phænomena *relating to the* Primitive *State of the Earth.*

XXIII. The *Primitive* State of the Earth admitted of the primary Production of Animals out of the Waters and Dry Ground, which the ſubſequent States, otherwiſe than in the ordinary Method of Generation, have been uncapable of.

XXIII. 'TIS not to be expected that I ſhould here be able to give a full and methodical Account of the Growth of the *Primitive* Pairs of Animals, and of the ſeveral Diſpoſitions of the *Primigenial* State of Nature ſubſervient or contributary thereto. The Method of the Generation of Animals is in it ſelf in general ſo little known, and the Hiſtory of this firſt Stage of the World, as well ſo ſhort in the Sacred Writings, as ſo difficult to be, in all its Circumſtances, now otherwiſe underſtood, that ſuch an Attempt might juſtly be look'd upon as too raſh a Preſumption. All that ought to be expected, and all that I ſhall endeavour is this; To ſhew, that as far as is known of that Original Earth, its Properties were as peculiarly fit for, as thoſe oppoſite ones of the ſucceeding are capable of, ſuch a Production of Animals at firſt, as this Propoſition takes notice of; which the Five following Particulars ſhall include. (1.) The long and continued Spaces of Day and Night in the *Primitive State* did capacitate it for ſuch Productions; which the quick Returns of the ſame afterward prohibited. 'Twill be eaſily granted, that in the Generation of Animals there muſt be a pretty

Hypoth. 3. prius.

conſtant and continual Warmth, without the frequent Interpoſition of Cold during the moſt part of the Proceſs. Now this the long Days of nine or ten Months afforded theſe Primary *Embrio*'s; which the ſhort ones of only twelve ſmall Hours, and the ſudden and frequent Returns of equal Nights, has utterly deny'd to any ſuch ever ſince. (2.) The *Primitive* Earth was moiſt and juicy enough to ſupply nouriſhment all the time of the Generation of the *Fœtus*; which, after it was once become perfectly dry and ſolid, was not again to be expected. It was before obſerv'd, that upon the Deſcent of the vaſt Quantities of Vapours on the Third Day, the Ground was ſo tender, ſoft, and full of Juices, as very naturally anſwered to what all Antiquity made the Fund and Promptuary of the riſing Plants and Animals, the famous Ἴλυς. And as that was but a neceſſary Qualification of a Soil which was to produce Animals, ſo the want of it ever ſince has taken away all Hopes of a like Propagation. (3.) The *Primitive* State of the Earth and Air, where the Animals were produc'd, had Heat ſufficient for that purpoſe, which the Subſequent has not. 'Tis evident that a greater Heat than the preſent Earth or ambient Air can afford, is requiſite to, and made uſe of in the preſent Generation of Animals, (which the Incubation in the Oviparous, and the ſtill warmer Poſition of the *Fœtus* in the Viviparous Animals aſſure us of :) On which account the preſent Earth muſt needs be incapable of their Production. But that the Heat in the *Primitive* Earth, and particularly where the Animals were produc'd, was much greater, will thus appear. As to the Heat from the Central Body, while the Earth was ſomewhat looſe, and pretty freely admit-

Solut. 7. priùs.

admitted the aſcending Steams, that would be conſiderably greater than after its more entire Conſolidation, when theſe Steams were thereby ſo much confin'd within or diverted to ſome particular Receptacles. Beſides the Production of Animals was near *Paradiſe*, and, I ſuppoſe, no where elſe. Now thoſe middle Regions, (of which *Eden*, the Country of *Paradiſe*, was one) being ſituate near the ancient Ecliptick, and preſent Tropick, (of which before) enjoy'd alſo a greater Heat from the ſame Central Body, by reaſon of their greater nearneſs thereto, than ſince, they, or the correſponding Parts of the *Torrid Zone* do, or can partake of. For ſince the Earth was then perfectly Spherical, the middle, and their neighbouring Parts, were about 15 or 16 Miles nearer the Central Solid than the ſame Regions now are: (They being in that Proportion elevated, and the Circumpopular depreſs'd at the commencing of the *Diurnal Rotation*:) Which greater Vicinity of the Central Heat muſt certainly have a ſuitable Effect, and cauſe ſomewhat warmer Regions thereabouts than they have been ever ſince. Moreover, if the real proper Heat of the Central Solid be in any conſiderable Proportion diminiſh'd in near 6000 Years time, (as in *ſome* Proportion it muſt be) That degree of Heat which it had at firſt, was ſtill the moſt powerful of all other ever ſince. But then as to the Solar Heat, 'tis evident that Paradiſe, ſituate near the very Ecliptick it ſelf, muſt receive almoſt the utmoſt Power of the ſame Heat which any part of the Globe were capable of, which by lying beyond the Tropick afterward it would not do. On all which accounts join'd together, 'tis evident that the Heat in the *Primitive* State was much more conſidera-

Hypoth. 4. priùs.

Lem. 70, 71. cum. coroll. priùs.

rable, and ſo much more adapted to the Generation of Animals than that in the ſubſequent ever was or can poſſibly be. (4.) The *Primitive* State was perfectly ſtill and calm; free from all ſuch Winds, Storms, violent Tides, or any the like Hurries and Diſorders as at preſent wholly render the Production of Animals impoſſible: Which quiet Condition, if in ſome reſpects it endur'd till the Deluge, yet, as even in thoſe the Paradiſiacal State might have the Pre-eminence; ſo in others, particularly the Gentleneſs of the Tides, it had ſtill the moſt peculiar Advantage; as was before obſerv'd. (5.) The Equability of Seaſons, and the greater Uniformity of the Air's Temperature, which in part remain'd till the Deluge, but might be more ſignal in the *Paradiſiacal* State, render'd that Earth as proper, as the contrary ſudden, uncertain, and violent Extremes of Heat and Cold, Drought and Moiſture, ſultry and froſty Weather now, wholly indiſpoſe it, for ſuch a Production of Animals. Which Prerogatives of the *Primitive* Earth and Air will certainly demonſtrate, if not its entire fitneſs, yet ſure its leſs unfitneſs for ſuch an original Generation as was here to be accounted for; and is all, as was before obſerv'd, that can juſtly be requir'd and expected in the preſent caſe.

Phænom. 41. priùs.

Solut. 19. priùs.

Phænom. 38. priùs.

Solut. 2. priùs.

Corollary. *Since it has been before allow'd that all Generation is but Nutrition; and that all Seeds, as well of Animals, as of Plants, are the immediate Workmanſhip of God; 'tis evident that this Suppoſition of the original Production of Animals out of the Waters and Earth; according to the plaineſt Letter of the* Moſaick *Hiſtory, does by no means derogate from the Divine Efficiency, and the wonderful Art and Skill in the Structure of their Bodies;*

dies; nor in the leaſt favour that ungrounded and pernicious opinion of the Equivocal *or Spontaneous Generation of any of them.* See Dr. *Bentley's* Serm. 4.

XXIV. The Conſtitution of Man in his *Primitive* State was very different from that ever ſince the Fall; not only as to the Temper and Perfections of his Soul, but as to the Nature and Diſpoſition of his Body alſo.

XXIV. The Book of *Geneſis* affords us ſo ſhort a Hiſtory of this *Primitive* Stage of the World, and of the Conſtitution of Man therein; and all other Hiſtories are ſo inconſiderable in this reſpect, that a particular Account of all things relating to this Propoſition is by no means to be expected. 'Tis in general ſufficient, that we have, from Sacred and Prophane Authority, evinc'd the State of External Nature to have been mighty different from the preſent; and that conſequently the State of Man, even on Philoſophical Conſiderations, ought to be ſuppos'd equally different from the preſent alſo. And 'tis ſo highly unreaſonable from meer Obſervations made now to paſs a Cenſure on what was done then; and from the Frail, Imperfect, Sinful, and Miſerable Condition of Human Nature in our Days, to judge of the ſame in its State of Innocence, Perfection and Felicity; or from the Circumſtances it is in at preſent, to determine thoſe it muſt at that time have been in; that nothing can be more ſo. We might almoſt as well argue that *Angels* Eat and Drink, Sleep and Wake, Work and Reſt, becauſe *We* do ſo; or that the *Infant* in the Womb ſees and hears, talks and diſcourſes, reads and writes, becauſe afterward *He* commonly does the ſame things; as that becauſe *We* have need

Lem. 73. cum Coroll. & Hypoth. 3. prius.

need of Cloathing to cover our Shame, and have Inflexible, Robuſt, and in a certain time Corruptible Temperaments of Body, therefore ſo had our *Primitive Parents* in the State of Innocency. But to ſpeak ſomewhat more diſtinctly to thoſe two particulars included under this Propoſition. (1.) That in the Actions relating to the Propagation of the *Species*, there ſhould be no Senſe of Shame, and conſequently no Occaſion for covering ſuch Parts as were therein concern'd, is by no means ſtrange, in a State of Innocence; where there was no Inclination to any ſinful Kind or Degree of Application, and where all ſuch *Inferior* Appetites were in compleat ſubjection to the *Superior*, the Reaſon and Conſcience of Man. 'Tis rather an evident Token of our Guilt, a Demonſtration of the Diſorder and Pollution of our Nature and Faculties *now*, that what in permitted Circumſtances, is innocent and natural in it ſelf, nay neceſſary for the Propagation of the *Species*, and the Preſervation of Mankind, ſhould make us bluſh: 'Tis a plain Note of the Vileneſs of our preſent State, a Mark of the Baſeneſs of our Condition *now*, that what God and Nature have ordain'd for the Continuation of the World, ſhould yet inevitably ſeem to have ſomething of Indecency and Turpitude adhering to it: So far, that meer Baſhfulneſs and Modeſty oblige us to conceal and paſs over in Silence all that belongs thereto. It indeed might more reaſonably be made a Query, why the Covering of our Nakedneſs has been ſo general, and is ſo neceſſary *now*, (as it has juſtly by all Ages and Nations been eſteem'd,) than why it was otherwiſe in this *Primitive* State of the World. (2.) That the uſe of one ſort of Food (that of the *Tree of Life*) might be capable

pable of fixing and ſettling the Temper of a Human Body, of rendring it ſo laſting, that, while its Earthly Condition was to continue, it might never be diſſolv'd; and that the Uſe of a contrary Sort of Food, (That of the *Tree of Knowledge of Good and Evil*,) might be capable of ſo far corrupting and diſordering the ſame, that it would become ſubject to Sickneſs, Miſery, and Diſſolution in a ſhorter Space, is, I think, even by what we at preſent ſee, by no means incredible. We cannot but obſerve how great a Change a Courſe of Diet, moderate, wholeſome, and agreeable, will make in our preſent Temperament for the better; and on the contrary, how far an intemperate, and immoderate Indulgence of our Appetites, either as to the Kinds or Quantities of our Meats and Drinks, tho' but for a few Weeks or Months, will do the ſame for the worſe; even to the ſpoiling and deſtroying of a very good Habit of Body, to the depriving Men of their Healths, nay frequently of their Lives too by a violent Diſeaſe. If we therefore, to take the narroweſt Suppoſition, imagine the eating of that pernicious and forbidden Fruit to have been confin'd to one Day or Year of this Primitive State, (which yet there is no neceſſity of doing;) 'twill be no harſh or incredible ſuppoſal; eſpecially, if we conſider what has been ſaid of the preſent State of Things, and how much more the temper of our firſt Parents Bodies, and the particular Food on which they fed, might be peculiarly fitted for the ſame Purpoſes; that the intemperate Indulgence of a very peſtilent Courſe of Diet for ſo many Months together might break and pervert the well-temper'd Conſtitutions of our firſt Parents, might render their Bodies liable to ſuch

Diſtem-

Diſtempers as in length of time would diſſolve, and entirely overthrow them; or, in other words would *render Mankind ſickly, miſerable, and mortal Creatures for ever after.* Which is, I think, enough to clear the Propoſition before us, ſo far as a bare *Phyſical Theory* is concern'd therein.

XXV. The Female was then very different from what ſhe is now; particularly ſhe was in a State of greater Equality with the Male, and little more ſubject to Sorrow in the Propagation of Poſterity than he.

XXV. That the original State and Circumſtances of the Female, ſhould be as they are here repreſented, is ſo far from being ſtrange, that the contrary ones of that Sex at preſent, were not the occaſion thereof known, might much more juſtly appear ſo. For granting the Equality of human Souls in themſelves, 'tis not very eaſy to give a good reaſon, why that Part which one half of Mankind was to bear in the Propagation of it, ſhould ſubject it to ſuch a low Condition, great Weakneſs of Nature, and thoſe ſevere Pains and Agonies which did not at all affect the other; as God and Nature have at preſent made unavoidable. And as to the change of her Name after the Fall, from *Adamah* and *Iſhſhah* to *Eve* (which latter ſeems to denote her Capacity *then attain'd* of becoming the Mother of all thoſe Generations of Mankind which were afterward to live on the Face of the Earth,) it may probably intimate, (to omit any other Obſervations that might be made on it,) ſome change in the Method or Circumſtances concerning human Generation. And if we conſider, that *Adam* and his *Wife* were no inconſiderable time in Paradiſe together, even after the Bleſſing of Increaſe and Multiply, before their Fall;

Gen. v. 2. & ii. 23, 24. with iii. v. 20.

Fall; and carefully conſider the Texts quoted in the Margin, and that part of the ancient Tradition in *Plato* which is quoted under the 23d *Phænomena* foregoing, we ſhall perhaps believe 'tis no improbable conjecture.

Gen. ii. 25 and iii. 7, 10, 11. and iv. 1.

XXVI. The other Terreſtrial Animals were in a ſtate of greater Capacities and Operations; nearer approaching to reaſon and diſcourſe; and partakers of higher degrees of Perfection and Happineſs, than they have been ever ſince.

XXVI. Since the *Primitive* State of External Nature was ſo exceeding different from the preſent, as has been already prov'd; the other Terreſtrial Animals, as well as Man, ought to be ſuppos'd of a ſomewhat proportionably different Temper, Abilities and Actions. Beſides, the Divine Providence is concern'd to ſuit one Being to another; and to accommodate ſtill the Subordinate, to the *Superior* Rank of Creatures in the World: On which account 'tis not ſtrange, that the Brute Animals were in their Primitive Conſtitution very much diſtinguiſh'd from, and advanc'd above ſuch as are now upon the Earth; the Diverſity with relation to Mankind, to whom in each Period they were to be ſubſervient, being ſo very remarkable. For ſince Mankind upon the Fall degenerated into a Senſual and Brutiſh Way of Living, the Brute Creatures themſelves would very unwillingly have paid their due Homage and Submiſſion, had not they in ſome degree degenerated from their Primitive Dignity at the ſame time. Which degeneracy being ſuppos'd, a former greater degree of Abilities, Operations, and Happineſs is at the ſame time ſuppos'd alſo. And to ſtrengthen this Conjecture, I may venture to appeal to *Anatomy*, whether the preſent Bodies of Brutes do not

appear

appear capable, as far as can be diſcover'd, of nobler Operations, than we ever now obſerve from them. The Advantage of even *Mankind* in this reſpect ſeeming not very conſiderable over the *Brutes that periſh.*

XXVII. The Temper of the Air, where our firſt Parents liv'd, was warmer, and the Heat greater before the Fall than ſince.

XXVII. This has been already accounted for in the Twenty Third Propoſition before.

XXVIII. Thoſe Regions of the Earth where our firſt Parents were plac'd, were productive of better and more uſeful Vegetables, with leſs Labour and Tillage than they have been ſince.

XXVIII. That we may account for this Propoſition, and that Curſe which was inflicted on the Ground at the Fall, in good Meaſure included therein; we muſt obſerve, that the Growth of Plants and Vegetables depends on a degree of Heat proportionate to the peculiar Temper and Exigence of each *Species*; and by conſequence that, let the Number of Seeds in any Soil be never ſo many, or their Kinds never ſo diverſe, yet the Surface of the Earth muſt remain bare and barren, until the peculiar Heat of the Seaſon and Climate be adapted to them: Now ſeeing different Kinds of Seeds require different degrees of Heat, 'tis only ſuch certain Kinds of the ſame that will at once ſhew themſelves, or ſpring out of the Earth; the reſt, to which the Heat is not adjuſted, lying all the while as Dormant and Dead as if they did not really exiſt in Nature. Thus we have ſeveral diſtinct Crops of Vegetables in the ſeveral Seaſons of the Year. Thoſe Seeds which the ſmall Heat of *February* and *March* is not able to raiſe, lie

lie ſtill in the Earth till the greater Force of the Sun in *April* and *May* excite them. In like manner ſeveral others, which are too craſs and unpliable for the moderate Warmth of the Spring, are by the yet greater Intenſeneſs of the Heat in *June*, *July* and *Auguſt*, rais'd from their Seats, and oblig'd to ſhoot forth and diſplay themſelves. Nay, when in the Months of *September* and *October* the Sun's Power is diminiſh'd, and its Heat but about equivalent to that of *March* and *April*, it again ſuits the Plants which were then in Seaſon; ſo that they many of them ſpring up afreſh in *theſe* Months, and flouriſh over anew, as before they did in *thoſe*; as Dr. *Woodward* very well diſcourſes upon this occaſion. In like manner we may alſo conſider this matter with relation to the different Climates and Zones of the Earth, and their quite different Crops of Plants, according to thoſe different degrees of Heat made uſe of in their Vegetation. When therefore we obſerve in the ſame Country a various Crop and Order of Vegetables every Year, according to the various Power of Heat in each ſeaſon; (a different Face of the Earth being gradually viſible from *February* till *July*, in proportion to the gradual increaſe of Heat all that ſpace;) we cannot tell, in caſe the Heat increas'd ſtill to a greater Intenſeneſs afterward, but a new and unſeen Face of things might ſtill appear; and many unheard-of Kinds of Vegetables might put forth, and expoſe themſelves to our Obſervation, even in the preſent State and Age of the World. But as to the Primitive World, wherein all the Seeds of thoſe Vegetables which God originally Created were freſh and vegetous, and wherein there was a greater Heat than ſince has been to invigorate and produce them; 'tis very reaſonable,

Eſſay. p. 267, &c.

and

and very agreeable to Nature to ſuppoſe, that many Sorts of Trees, Plants, Herbs and Flowers, which the colder temper of the ſubſequent Earth was unable to excite and produce, were then every Year rais'd, and became the principal Recreation and Suſtenance of our firſt Parents in the ſtate of Innocency. 'Tis very probable they might never ſee ſuch a Poor, Jejune, and Degenerate State of the Vegetable Kingdom as we ſince have done, till their unhappy Fall occaſion'd the Introduction of that miſerable Condition of all things which has ever ſince continu'd among us. Thus as one Country or Climate, becauſe of its greater Coldneſs, is now the Seminary of ſeveral Vegetables which the warmer Regions are either perfect Strangers to, or advanc'd to a greater degree of Perfection; ſo upon the degeneracy of the Primeval State into the preſent, and the Abatement of the Ancient Heat (taken together with the worſe Juices and other effects of that Abatement contributary perhaps to the ſame thing) 'tis natural to allow that ſeveral ſuch Vegetables (ſuppoſe *Thorns* and *Thiſtles*) which were before either perfect ſtrangers to, or had been advanc'd to a greater degree of perfection by the Juices and Warmth of Paradiſe, became the conſtant and troubleſome Heirlooms there; to the no little Regret of our firſt Parents; who till then had only ſeen and enjoy'd the better Set of the *Primigenial* Vegetables. And if we conſider withal, that a main Intention of the Toil, Tillage and Manure of the Husbandman, which, now the Sabbatical Year of Reſt for the Land was over, *Adam* muſt enter upon, ſeems to be deſign'd to Enſpirit and Envigorate the too Cold and Unactive Soil with Warm and Active Particles, we ſhall not be unwilling to grant, that thoſe Labours of the Husbandman, on this,

this, as well as on ſeveral other Accounts which might be mention'd, muſt have been in the *Primitive* ſtate very facile and eaſy, in compariſon of thoſe which are neceſſary in the preſent ſtate.

Scholium. 'Twill be here, I imagine, not improper to remind the Reader once for all of the Nature and Effects of that extraordinary *Change*, which the Fall of Man, and the conſequent Curſe of God brought upon the Earth: That he may with the greater Eaſe, of his own Accord, view and compare the States of External Nature before and after the Fall one with another, and with thoſe things which the Propoſitions we are now upon do aſſert concerning them. 'Tis evident then, from what has been before laid down hereto relating, that the primitive ſtate of things before the Fall was thus: The Earth, being newly form'd, was ſcarcely as yet entirely conſolidated, and ſo pretty uniformly pervious to the warm Steams aſcending from beneath. Its Figure was perfectly Spherical, and its *Strata* or *Layers* by conſequence were even, continu'd, and join'd; and ſo the Central Heat, being equally diſtant from all the Parts of the Earth's Surface, did very equally diffuſe it ſelf, and equally affect all the Climates of the Globe. The Soil or uppermoſt *Stratum* of the Earth was newly moiſten'd by the deſcent of the Waters, before they compos'd the Seas on the Third Day of the Creation, and by the plenty of Moiſture which it ſtill receiv'd every Night. The Air was perfectly Clear, Homogeneous, Tranſparent, and Suſceptive of the utmoſt Power of the Solar Heat. The Seaſons were equable, or gently and gradually diſtinguiſh'd from one another, by the Riſing, Setting, Deſcending and Aſcending Sun, without any quick Interpoſitions of

Lem. 70, &c. & Hypoth 3. priùs.

Day and Night to disturb them. The *Torrid Zone* of the Earth, as I may call those Regions near the Solar Course, was very much Expos'd to the Sun, and somewhat more warm'd withal by its greater Nearness to the Central Solid. The *Moon* in twelve or more Revolutions equally measured out the Year, and caus'd the most gentle, easy, and gradual Tides imaginable. This with all its natural Consequents, was the State of the *Primitive* World. But as soon as Man had sinn'd and render'd that happy State too good for him, or indeed rendred himself wholly uncapable thereof; and as soon as God Almighty had pronounc'd a Curse on the Ground, and its Productions, presently the Earth began a new and strange Motion, and revolv'd from *West* to *East* on its own *Axis*: A single Νυχθήμερον, or Revolution of Night and Day, return'd frequently, and became no longer than 24 short Hours; while the *Annual* Motion, perform'd on a different *Axis*, distinguish'd the Seasons; and in Conjunction with the *Diurnal*, describ'd the Equator, and the Tropicks; and by the Access and Recess of the Sun from the last named Circles, caus'd it to visit the several Regions enclos'd thereby. The Face of the Earth was really distinguish'd into *Zones*, by the Tropicks and Polar Circles, truly divided from one another; with respect whereto the particular Regions of the Earth chang'd their Situation; the Equator being that Circle with regard whereto they were now to be determin'd, as they had been before with regard to the Ecliptick; and so that Paradise which was before near the middle or Ecliptick was now beyond the *Northern* Tropick or Boundary of the *Torrid Zone*. The Figure of the Earth, which was before truly Spherical, degenerated into an

Oblate

Oblate Spheroid; the *Torrid Zone* riſing about 15 or 16 Miles upward, and the *Frigid* one ſubſiding as much downwards. The *Compages* of the Upper Earth, and of its *Strata*, became thereby chap'd, broken and divided, and ſo carried up the warm Steams from beneath, to particular Receptacles and *Volcano*'s, which before ſerv'd in a more equal and uniform manner to heat and invigorate the entire Earth and its Productions. The Tides, laſtly, became frequenter, and ſo more ſudden and violent than before. Which ſhort Summary or Scheme of the States of Nature in our Hypotheſis before and after the Fall, ought to be all along born in mind, and reflected on, in order to the paſſing a right Judgment on the Accounts of thoſe Phænomena, in the Solution whereof we are now engag'd: And which otherwiſe might ſeem very odd and unaccountable to the Reader. Which being thus diſpatch'd, I proceed.

XXIX. The *Primitive* Earth was not equally Paradiſiacal all over. The Garden of *Eden* or Paradiſe being a peculiarly fruitful and happy Soil, and particularly furniſh'd with the Neceſſaries and Delights of an innocent and bleſſed Life, above the other Regions of the Earth.

XXIX. That all the *Primitive* Earth could not be equally Paradiſiacal, and enjoy the ſame Privileges and Conveniences beyond the preſent, is eaſily prov'd. For ſeeing one of its principal Cauſes of Fertility, and other Prerogatives, was the greater Degree of Heat at the Paradiſiacal Regions; The Climates near the Solar Courſe being alone capable of ſuch greater Heat, muſt be alone capable of its Effects alſo; and conſequently, we are to confine our Enquiries for the Garden of *Eden* to the Countries not very remote from the Ancient Ecliptick. Now that

ſome peculiar Spot or Region thereabouts might beyond all the reſt, be Fertile, Pleaſant and Paradiſiacal, 'tis not difficult to ſuppoſe. At the preſent there is a mighty Variety in Countries in the very ſame Hemiſphere, Climate, and Parallel. The particular Prerogatives of one Region beyond another do not entirely depend on the Sun, or the Vicinage of the Central Heat: But partly on the Nature and Temper of the Soil; the Kinds of Vegetables and Foſſils thereto belonging; the number, qualities, and conflux of Rivers; the Firmneſs or Looſeneſs of the *Inferior Strata*, hindring, or freelier permitting the aſcent of the Subterraneous Steams, Juices, and *Effluvia*: From the Coincidence of which, and of other ſuch things, in a peculiar and advantagious manner, order'd and diſpos'd on purpoſe by the Divine Providence at the *Moſaick* Creation, the extraordinary Pleaſantneſs and Felicity of this Earthly Paradiſe, or Garden of Pleaſure, is, I ſuppoſe to be deduc'd; and which being conſidered, will, I believe, be ſufficient to give Satisfaction in the Propoſition before us.

XXX. The ancient Paradiſe or Garden of *Eden*, the Seat of our firſt Parents in the State of Innocence, was about the *North-Weſt* Bounds of *Aſſyria*, at the River *Tigris* and *Euphrates*; (for their *Antediluvian* ſtreams ſeem to have been united before they were come ſo far as *Aſſyria*:) a little below which place they were parted into four branches, and ſo ran into the great *Southern* Ocean call'd by the Ancients the *Red Sea*, at four Outlets at no ſmall diſtance from one another.

Hypoth. 4. præmiſſ.

XXX. This Situation of Paradiſe has been already conſider'd, and need not here be reaſſum'd. Only we may obſerve, That no Scruples would ever have been rais'd about this Matter, in caſe the fore-mention'd Rivers had ſtill been viſible, their Courſe ſtill agreeable to the *Moſaick*

Moſaick Deſcription, and the Metals and Minerals mention'd of the adjoining Countries had been as evidently there to be found in *ours*, as they appear to have been in thoſe *Primitive* Times. Seeing therefore the preſent *Theory* will ſo clearly aſſign the Cauſe of ſuch Diverſity, that every *Reader* will be oblig'd to grant it much harder to have accounted for the *Phænomena of Paradiſe*, conſiſtently with the other *Phænomena of Natnre*, if all things were now as they were at firſt, than almoſt any other of the *Antediluvian* World: I may juſtly hope that this ſo diſputed a Queſtion of the Situation of the Garden of *Eden*, or Primitive Paradiſe, to thoſe who embrace the other Parts of the *Theory*, will remain no longer ſo, but be almoſt as fix'd and undoubted, as any other Country or Region with the ſame Exactneſs determin'd by Geography.

XXXI. The Earth in its *Primitive* State had only an *Annual* Motion about the Sun; But ſince, it has a *Diurnal* Motion upon its own *Axis* alſo: Whereby a vaſt difference ariſes in the ſeveral States of the World.

XXXI. This has been at large explain'd and prov'd already. Lem. 73. & Hypoth. 3. priùs.

XXXII. Upon the firſt commencing of this *Diurnal* Rotation after the Fall, its *Axis* was oblique to the plane of the Ecliptick as it ſtill is: Or in other words, the preſent Viciſſitudes of Seaſons, *Spring*, *Summer*, *Autumn* and *Winter*, ariſing from the Sun's acceſs to, and receſs from the *Tropicks*, have ever been ſince the Fall of Man.

XXXII. This has in ſome meaſure been inſiſted on already in the Hypotheſis laſt mention'd, and needs no other direct and poſitive Proof than the preſent Obliquity of the Earth's *Axis*: It being evident, that without a miraculous Power, the ſame Situation or Inclination which it had originally

Newt. p. 187. ginally, would and muſt invariably remain for all ſucceeding Ages.

XXXIII. Since the Commencing of this diurnal Rotation, the inward and central Parts have not revolv'd quite ſo faſt as the outward and ſuperficial.

XXXIV. As a Conſequence of the former it appears that the cauſe of the diurnal Rotation was ſome force impreſſed on the outward and ſuperficial Parts, and thence communicated to the inward.

XXXIII, XXXIV. The Solution of theſe two Phænomena, as well as the Phænomena themſelves, has been explain'd in the IIId Hypotheſis already, and need not here be repeated.

CHAP. III.

A Solution of the Phænomena *relating to the* Antediluvian *State of the Earth.*

XXXV. The Inhabitants of the Earth were before the Flood vaſtly more numerous than the preſent Earth either actually does, or perhaps is capable to maintain and ſupply.

XXXV. THIS Propoſition will not appear ſtrange, if we conſider, (1.) The much greater fertility of the *Antediluvian* Earth, to be preſently accounted for; whereby it was capable of maintaining a much greater number of Inhabitants than the preſent, even on the ſame ſpace of Ground. (2.) The Earth was more equally habita-

habitable all over before, than ſince the Deluge. For before the Acquiſition of thoſe heterogeneous Mixtures, which the Deluge occaſion'd, and which I take to be the Cauſes of all our violent and pernicious Heat and Cold in the *Torrid* and *Frigid Zones* of our Earth; 'tis probable the Earth was pretty equally habitable all over, by reaſon of the ſomewhat greater Vicinage of the Central Heat to the *Polar* Regions, and the more direct Expoſing of the middle Regions to that of the *Sun*. I do not mean that the *Frigid Zones* were equally hot with the *Torrid*; but that the Heat in the one and the Cold in the other, were more kindly; and the exceſſes of each much leſs conſiderable than at preſent, ſince the Introduction of the before-mention'd Mixtures, and particularly of ſuch Sulphureous and Nitrous *Effluvia*, as are now, I believe, become Calorifick and Frigorifick Particles in our Air, the main occaſions of the violence and pernicious Qualities of the Heat and Cold thereof, and the moſt affecting to our Senſes of all other. So that 'tis probable, before the Acquiſition of theſe *Adventitious* Maſſes, the Antediluvian Air was every where ſufficiently temperate to permit the comfortable Habitation of Mankind on all parts of the Globe; and the Antediluvian Earth was by conſequence capable of many more Inhabitants than the preſent is, or can be; as every one will readily grant, who conſiders how few Inhabitants, in compariſon, three of the five Zones of our preſent Earth do maintain. (3.) The dry Land or habitable Earth it ſelf was, by reaſon of the abſence of the entire Ocean, almoſt as large and capacious again as the preſent: For the Ocean, I think, takes up now at the leaſt one half of the entire Globe; but then afforded as large, ſpacious, and habitable

Countries, as the other Parts of the Earth. (4.) The Mountains which are now generally bare and barren, were before the Deluge, ſo far as they were ſupply'd with Water, as fruitful as the Plains or Vallies; and by reaſon of a larger Surface, were capable of maintaining rather more Animals than the Plains on which they ſtand, would otherwiſe have been: The preſent defect of a fruitful Soil being owing to the Deluge; and there being no good reaſon, that I know of, to be aſſign'd why, on a primary Formation, and in a calm and ſtill State of the Air, the higher Parts of the Earth ſhould not be cover'd with a fruitful Soil or Mold, as well as the level or lower adjoining to them. All which Accounts taken together, will, I think, give ſome reaſonable account of ſuch vaſt numbers of Inhabitants, as according to the Computation of this Propoſition, the Antediluvian World was repleniſh'd withal.

Corollary 1. *Since by very reaſonable Computations of the numbers of the Inhabitants of the Earth at the Deluge, according to the* Hebrew *or* Samaritan *Chronology, they appear to have been ſufficient abundantly to repleniſh the entire Globe, and full as many as in reaſon the ſame could ſuſtain; The* Septuagints *Addition of ſix or ſeven hundred Years in this Period of the World to the other Accounts, is ſo far from clearing Difficulties thereto relating, that it greatly increaſes the ſame, and implies rather the allowance of more Inhabitants at the Deluge, than we can at all tell where they could live and be maintain'd.*

Coroll. 2. *Since according to the old* Hebrew *or* Samaritan *Chronology from the Deluge till the time of* Abraham's *going into* Canaan, *was the entire ſpace of* 966½ *Years, and the Lives of Men during that inter-*

terval were in a mean three hundred Years long; 'tis eaſy on the Grounds proceeded upon in this Phæno-menon's *Calculations to prove, That there is no need to recede from that Account, to produce the greateſt Numbers of Men which in that, or the immediately ſucceeding Ages, any Authentick Hiſtories of thoſe Ancient Times do require us to ſuppoſe, and which I have conjectur'd at in a Table belonging to this Matter elſewhere.*

See *Chronol. Old Teſt.* p. 65. &c.

Coroll. 3. *The Deluge which deſtroy'd the whole Race of Mankind (thoſe only in the* Ark *excepted) could not poſſibly be confin'd to one or more certain Regions of the Earth, but was, without queſtion, truly Univerſal.*

Coroll. 4. *Seeing it appears, That Mankind has had a gradual Increaſe, and that in leſs than Five Thouſand Years, our Continent of* Europe, Aſia, *and* Africa, *has been ſo entirely Peopled from the Sons of* Noah; *and ſeeing withal* America *is much leſs in Extent, and, I ſuppoſe, generally ſpeaking, was never ſo full of People: In caſe we ſuppoſe that Famines, Wars, Peſtilences, and all ſuch ſad Deſtroyers of Mankind have equally afflicted the ſeveral Continents of the Earth; ſome light might be afforded to the Peopling of* America, *and about what Age ſince the Deluge, the* Americans *paſt firſt from this Continent thither, if they did ſo paſs; which a more nice Enquiry into the Particulars here to be conſider'd might aſſiſt us in.*

XXXVI. The Brute Animals, whether belonging to the Water or Land, were proportionably at leaſt, more in number before the Flood than they are ſince.

XXXVI. That part of this Propoſition which concerns the dry Land Animals, is ſufficiently accounted for, by what has been diſcours'd under the

the laſt Head, which equally belongs to them as to Mankind: And if we extend the other part concerning the Fiſhes, to the Seas then in Being, and their comparative Plenitude, there will need no additional Solution. It being not to be ſuppos'd that the abſolute Numbers of Fiſh before the Deluge, ſhould be greater than at preſent, as the caſe was of the dry Land Animals; becauſe the latter being univerſally deſtroy'd, (thoſe in the Ark alone excepted,) were to begin their Propagation anew; but the former not being ſo, did but increaſe their ſtill numerous Individuals, and muſt thereby ſoon recover and ſurpaſs their former Multitude; as will eaſily be allow'd on a little Conſideraiion of this Matter.

Corollary. *Hence ariſes a ſtrong Confirmation of what is on other Grounds already aſſerted, That there were only ſmaller Lakes and Seas, but no great Ocean before the Deluge. For ſince it appears by this Phænomenon, that the Waters of the Antediluvian Earth were much more repleniſh'd, nay, crouded with Fiſh than now they are; and ſince there was no general Deſtruction of them, as there was of the dry-Land Animals at the Deluge; had there been as great a Compaſs, or as vaſt an Ocean for their Reception then, as at preſent there is, the numbers now in every part of the Ocean or Seas, ought to be vaſtly greater than they then were, as being all the Off-ſpring of thoſe which every where ſurviv'd the Deluge, and which have propagated themſelves for much more than four thouſand Years ſince the ſame; which being diſagreeable to the Obſervations referr'd to in this Phænomenon, is little leſs than a Demonſtration of the Falſhood of that Hypotheſis on which 'tis built, or a full Atteſtation to our Aſſertion, that there*

there were only ſmaller Lakes and Seas, but no great Ocean before the Deluge.

XXXVII. the Antediluvian Earth was much more fruitful than the preſent; and the multitude of its vegetable Productions much greater.

XXXVII. Before I come directly to ſolve this and the following Propoſitions, I muſt premiſe, that 'tis uſually unreaſonable to ask, why ſuch Phænomena belong'd to the Antediluvian World: They being commonly but the natural and regular Properties of an Original Earth, newly form'd out of a *Chaos*; ſuch as one ſhould rationally expect in a World newly come out of the Hands of its Creator, and fitted for the Convenience and Fruition of noble Creatures; ſuch as the generality of our fellow Planets, (eſpecially our next Neighbour, the Moon) as far as we can obſerve, appear to have had at firſt, and hitherto retain'd. All that can in reaſon be deſir'd, is this, To give a plain and intelligible Account of thoſe oppoſite *Phænomena* of the Earth, which we *now* are ſenſible of, and by what means the Deluge could occaſion the ſame. Which therefore ſhall be frequently the buſineſs of the ſucceeding Solutions. And as to the preſent caſe, the decreaſe of the fertility of the Earth at the Deluge, theſe Cauſes are aſſignable: (1.) The decreaſe of the Sun's Heat by the greater diſtance of the Earth from him ſince, than before the Deluge. It has been before prov'd, that till the Deluge, the Earth's Orbit was Circular, and the *Radius* of that Circle in a manner the ſame with the neareſt diſtance at the *Perihelion* now: So that ſince the Heat of the Sun is as the Denſity of his Rays, or at leaſt *reciprocally* as the Squares of the Earth's diſtance from him: If inſtead of the preſent *Ellipſis* we take for Calculations ſake,

as

as we ought, a Circle, in the middle between the neareſt and fartheſt diſtance, we ſhall find that the *Sun*'s Heat on the Earth in general before the Deluge, was to its preſent Heat, as almoſt a hundred to ninety ſix, or a twenty fifth part of his entire Heat greater before than ſince the ſame, which is by no means inconſiderable in the Caſe before us. (2.) The Heat of the Central Body was conſiderably damp'd and obſtructed, both by the Waters of the Deluge themſelves, acquir'd from abroad, and now contain'd in the Pores and Caverns of the Earth under us; and by that Sediment of them which now compoſes that upper Cruſt of Earth we dwell upon, and which being ſettled and conſolidated on the Superficies of the ancient Earth, would prove a great Hindrance to the aſcending Steams, not to be overcome but by Degrees, and in length of time afterwards. From both which Cauſes a very notable Damp would be put to the Influence of the Central Heat, on which, as well as on the *Sun*'s, the Fertility of every Soil ſeems in part to depend. (3.) The upper Earth, or fruitful Soil it ſelf, the main Fund and Promptuary of the vegetable Kingdom, is now very inconſiderable in quantity, if compar'd with that of the Primitive or Antediluvian Earth. For ſince this laſt mention'd was the entire product of the Ancient *Chaos*, at the Original Formation of the Earth; and the firſt, what only was afforded from a ſmall part of ſuch a *Chaos*, or of the Comet's *Atmoſphere*, and by the Storms born off the Tops of Mountains at and after the Deluge, while the old Soil lies buried under the Sediment or Cruſt on which we live; 'tis no wonder that our fertile *Stratum* is now thinner ſpread, and ſo the Productions leſs copious in the preſent, than they were in the Ante-

Antediluvian State of Things. And this, tho' we ſuppoſe the Soil from the Comet, or from the Tops of the Mountains, to be as good in it ſelf, and to have remain'd as pure and unmix'd with any heterogeneous Matter in this Confuſion of things at the Deluge, as it would at the regular Formation of the Earth at firſt; which yet is by no means ſuppoſable; and the contrary to which being allow'd for, will ſtill farther afford us a reaſon of the preſent Aſſertion. So that ſince the preſent Soil is both much worſe in Quality, and much leſs in Quantity than the old one; and ſince the Heat, whether of the Sun or Central Solid is ſo much leſſen'd at the Deluge, which things include the main Cauſes of Fertility; 'tis no wonder that the preſent Earth is nothing near ſo fruitful and luxuriant in her Productions, as the Antediluvian was.

XXXVIII. The Temperature of the *Antediluvian* Air was more equable as to its different Climates, and its different Seaſons; without ſuch exceſſive and ſudden heat and cold; without the ſcorching of a *Torrid Zone*, and of burning Summers; or the freezing of the *Frigid Zones*, and of piercing Winters; and without ſuch ſudden and violent Changes in the Climates or Seaſons from one Extreme to another, as the preſent Air, to our Sorrow, is ſubject to.

XXXVIII. Seeing the primary State here mention'd, is but a proper reſult from the firſt Formation of the Earth; all that need be accounted for, is the Alteration at the Deluge. (1.) The mighty difference of Climates, eſpecially of the *Torrid* and *Frigid Zones*, is, I ſuppoſe, owing not only to the *Sun*'s Heat, or the Nature of the Air it ſelf, but partly to thoſe Calorifick and Frigorifick Mixtures, which are uncertainly contain'd therein. Meer Heat and Cold are very different things from that Pothery and Sultry, that Froſty and Congealing Weather, which alternately

See alſo Philoſ. Tranſact. *No.* 203. *p.* 879, &c.

ternately in Summer and Winter, at the Line and the Poles we uſually now feel. Theſe Effects ſeem plainly deriv'd from Nitrous or Sulphureous, or other the like Steams exhaled into, mix'd with, and ſuſtained by that thick and groſs Atmoſphere which now encompaſſes the Earth. All which I mean as well the groſs Atmoſphere it ſelf, as thoſe its Heterogeneous Mixtures, are a very natural Off-ſpring of the Deluge, according to the preſent Account thereof. For ſeeing we at that time paſs'd clear through the *Chaotick Atmoſphere* of a Comet, we muſt needs bear off, and acquire vaſt quantities of ſuch heterogeneous and indigeſted Maſſes, as our Air now contains in it; whence thoſe Effects here mention'd would naturally proceed. 'Tis probable the original Air was too pure, rare, and thin, to ſuſtain any groſs and earthy Particles, tho' they had been left in it at the firſt, and ſo its Heat both for kind and degree, was no other than the proper Place and Influence of the Sun could require: And 'twas then ſure more uniform through the ſeveral Climates of the Earth than *now* it is; when our Air in the *Torrid Zone*, being full of Sulphureous and Sultry, and in the *Frigid* ones of Nitrous and freezing *Effluvia* or Exhalations, the violence of an unkindly Heat in the one, and of the like unkindly Cold in the other, are ſo ſenſible, and ſo pernicious, as all Experience atteſts them now to be. (2.) The uncertainty of our Seaſons, with the ſudden and unexpected changes in the Temper of our Air, are on the ſame Accounts equally viſible with the former. For the Temper of the Air ſince the Deluge, eſpecially with regard to our Senſations, not reſulting from the external Heat only, but from the Kinds and Quantities of its heterogeneous

and

and adventitious Mixtures, will not now depend on the Seaſon of the Year alone, but on the veering of the Wind, and its uncertain removal of the Air with its Steams from one Region to another. Thus if in *Summer* the *North* Wind chance to blow any long time together, 'twill bring along with the Air ſo great Quantities of the Cold, Freezing, Nitrous Steams, as may quite overcome the *Sun*'s Heat, and cauſe a very cold Seaſon of a ſudden; if the *South* Wind do the like in the *Winter*, the contrary Effect will follow, and we ſhall have a warm Seaſon when Froſt and Snow were more naturally to be expected. Thus, accordingly, frequent experience ſhews the *Sun* to be ſo little Maſter of the Seaſons of the Year, that ſometimes *January* and *July* for ſeveral Days are hardly diſtinguiſhable. It ſometimes happens, that we have this Day a Froſt, the next proves ſo warm, that the former Cold is forgotten, till perhaps the ſucceeding Night puts us more affectingly in mind of it again. Nay, in a very few Hours ſpace a ſultry and a freezing Air not ſeldom do ſucceed each other, to the great harm and miſery of Mankind, and of all their fellow Animals in our preſent State; from which certainly we have good reaſon to believe our happier Progenitors before the Deluge were entirely free. (3.) That our Seaſons are ſo extreme in their ſeveral Kinds, is eaſy to be hence accounted for alſo. For were there no ſulphureous or calorifick Steams in the Air, all pothery and ſultry Weather, and ſuch ſort of Heat as chiefly affects our Bodies. would be quite avoided, and the great increaſe thereof after the *Summer Solſtice*, which ariſes, 'tis probable, in part from the Airs retention of one Day's Heat, till the next augments it again, would in good

mea-

measure ceaſe among us. And the like is to be ſaid of the Cold in *Winter*, in all the reſpects before mention'd. The Original of all which Effects being ſo eaſily deducible from the preſent Account of the Deluge, 'tis no queſtion but the Antediluvians might to their comfort, be wholly Strangers to them. Their Climates were not of ſo very different Temper; their Seaſons leiſurely and gradual, entirely following the Solar Courſe; and their Summers and Winters not ſo mighty different; at the moſt in the ſingle Proportion of the Sun's Preſence or Abſence, Direct or Oblique Situation. In this equable State the *Polar* Inhabitants might with little danger cut the *Line*, and the *Ethiopians* viſit the *Frigid Zone*. In this condition of the World, the peculiar Air of every Country went not far from home, to diſturb that of others: A few days never made any ſenſible Alteration in the temperature of the Air; and all that entire *Spring* or *Autumn* could do, would ſtill leave the ſame pretty equable; to be ſure very tolerable. On all which, and ſeveral other conſequential Accounts, we have but too much reaſon to envy the Ancient Happineſs of our Forefathers, and to be ſenſible of that fatal and deſtructive Cataſtrophe, which the Wickedneſs of Mankind brought upon themſelves, and all their Poſterity to this very Day, at the Deluge we are now ſpeaking of.

XXXIX. The Conſtitution of the *Antediluvian* Air was Thin, Pure, Subtile and Homogeneous; without ſuch groſs Steams, Exhalations, Nitroſulphureous, or other Heterogeneous Mixtures, as occaſion Coruſcations, Meteors, Thunder, Lightning, with Contagious, and Peſtilential Infections, in our preſent Air; and have ſo very pernicious and fatal (tho' ſometimes almoſt inſenſible) effects in the World ſince the Deluge.

XXXIX. The Conſideration of the foregoing *Solution* is ſufficient to clear the preſent Phænomenon alſo; to which therefore the *Reader* is referr'd.

XL. The Antediluvian Air had no large, groſs Maſſes of Vapours, or Clouds, hanging for long ſeaſons in the ſame. It had no great round Drops of Rain, deſcending in Multitudes together, which we call Showers: But the Ground was watered by gentle Miſts or Vapours aſcending in the Day, and deſcending, in great meaſure, again in the ſucceeding Night.

XL. This is alſo eaſily underſtood from what has been already ſaid. So rare, thin, pure, and ſubtile an Air as the Antediluvian was, would ſcarce ſuſtain ſuch groſs and heavy Maſſes, as the Clouds are: It would not precipitate the *Superior* Vapours upon the *Inferior* in ſuch Quantities, and with ſuch Violence, as is neceſſary to the Production of great round ſenſible Drops of Rain: It had no groſs Steams to retain Heat after the Cauſe of it was gone, and the Sun ſet; and ſo the Vapours which were rais'd in the Day, would deſcend again in the Night with the greateſt Regularity and Gentleneſs. In all which reſpects the different Nature, Craſſitude, and irregular Compoſition of our preſent groſs *Atmoſphere*, acquir'd at the Deluge from the Comet's, in which ſuch Opake Maſſes as the Clouds, are frequently to be obſerv'd, muſt naturally admit and require thoſe contrary Effects, which the preſent Propoſition takes notice of, and were to be here accounted for.

XLI. The Antediluvian Air was free from violent Winds, Storms, and Agitations, with all their Effects on the Earth or Seas, which we cannot now but be ſufficiently ſenſible of.

XLI. Theſe *Phænomena* are ſuch proper Conſe-

ſequents of a Primitive Formation, and the Original of thoſe oppoſite ones ever ſince the Deluge ſo naturally thence to be deriv'd, that there is no reaſon to imagine them to have been before. A Comet's *Atmoſphere* is a very *ſtormy Fluid*, wherein Maſſes of Opake Matter are continually hurried about, all manner of ways, in a very uncertain and violent manner. Seeing therefore we acquir'd at the Deluge ſo great a Quantity of the ſame Atmoſphere, of which ours is now in part compos'd, 'tis impoſſible to expect any other State of things than ſuch as this Phænomenon mentions, and was to be here accounted for.

Gen. iii. 8. Marg.

Corollary. *Hence it appears, That the* Wind of the Day, *of which* Moſes *makes mention at the Fall of Man, if it was conſiderable, was not a conſtant* Phænomenon *of the Earth, but peculiar to that time. And this is very agreeable to the* Hypotheſis *before laid down of the commencement of the* Diurnal Rotation *at the very day here mention'd; according to which a Wind muſt neceſſarily ariſe at that point of Time, tho' there were none before or after, till the Deluge. On that beginning of the* Diurnal Rotation, (1.) *The* Equatorial *Regions would be elevated, the* Polar *depreſs'd, the* Orb *of Earth would be chap'd and broken, and warm Steams burſt out at the Fiſſures thereby produc'd; all which could ſcarce happen without ſome Agitation of the Air. But,* (2.) *What is more certain and more conſiderable, when the* Terraqueous Globe *began on a ſudden to revolve from* Weſt *to* Eaſt, *the Air could not preſently accompany it, and ſo muſt cauſe a Wind from* Eaſt *to* Weſt; *till receiving by degrees the Impreſſion, it kept at laſt equal pace therewith, and reſting reſpectively, cauſed a conſtant Calm afterwards. Which Wind being therefore (from the Earth's*

Earth's Velocity there) *greateſt towards the Equator and Tropicks, near the latter of which was the Place of Paradiſe, would be conſiderable enough, eſpecially in a State otherwiſe ſtill and calm, to be taken notice of by the ſacred Hiſtory; and be a kind of Relick or Footſtep of the then Commencement of that* Diurnal Rotation, *which is ſo neceſſary to account for it, and has been from other Arguments already prov'd in its proper Place.*

XLII. The Antediluvian Air had no *Rain-Bow*; as the preſent ſo frequently has.

XLII. This is eaſily accountable from what has been already ſaid. For, (1.) The deſcent of the Vapours neceſſary to it was uſually, if not only in the Night, when the abſence of the Sun rendred its appearance impoſſible. (2.) The deſcending Vapours compos'd only a gentle Miſt, not ſenſible round Drops of Rain, as we have before ſeen, on which yet the Rain-Bow entirely depends; as thoſe who underſtand the Nature and Generation thereof will eaſily confeſs. So that tho' the Sun were above the Horizon at the fall of the Vapours, the appearance of the Rain-Bow was not to be expected. (3.) Were the Vapours that fell compos'd of ſenſible round Drops, and fell in the Day-time, and this in ſufficient Quantities, yet for want of a Wind which might drive them together on one ſide, and thereby clear the Air on the other, for the free admiſſion of the Rays of Light, a Rain-Bow were ſeldom or never to be ſuppos'd before the Deluge; all which Circumſtances being now quite otherwiſe, give us clear reaſons for the preſent frequent appearance of that beautiful and remarkable Phænomenon, tho' till the Deluge, it was a perfect Stranger to the World.

XLIII. The *Antediluvians* might only eat Vegetables; but the Uſe of Fleſh after the Flood was freely allow'd alſo.

XLIII. That a State of Nature as to the Air, Earth, Fruits, and other Circumſtances ſo very different from ours at preſent, ſhould require a ſuitable Difference in the Food and Suſtenance of Mankind, is very reaſonable to believe. But beſides, (1.) When the Lives of Animals were naturally ſo long, (as in Correſpondence to Mankind is fairly to be ſuppos'd,) before the Deluge; 'tis not improbable that God Almighty would not permit them to be taken away on any other Occaſion than that of Sacrifice or Oblation to himſelf. (2.) Perhaps in the tender and even Condition of the Antediluvians, the eating of Fleſh would have ſpoil'd their Tempers, and ſhortned their Lives; ſuch Food being, I ſuppoſe, fitter for our groſs and ſhorter-liv'd State ſince the Flood, than that refin'd and laſting one before it. (3.) Perhaps the Antediluvian Vegetables were more juicy, nouriſhing, and wholeſome, not only than Fleſh, but than themſelves have ſince been; which the better and more fertile Soil out of which they grew then, gives ſome reaſon to conjecture. And whether they had not then ſome Vegetables which we have not now, may deſerve the Conſideration of ſuch as ſearch after their remains in the Bowels of the Earth: The ſame care of the Vegetable, as of the Animal Kingdom not appearing in the Sacred Hiſtory relating to the Deluge. However, (4.) If we obſerve that even at this Day, the warm Seaſons and Countries are leſs diſpos'd to the eating of Fleſh than the cold ones; and remember that the Antediluvian Air was in ſome

De-

Degree warmer than the preſent, we ſhall not be wholly to ſeek for a particular reaſon of this Phænomenon. Solut. 37. prius.

XLIV. The Lives of the *Antediluvians* were more univerſally equal, and vaſtly longer than ours now are: Men before the Flood frequently approaching near to a thouſand, which almoſt none now do to a hundred Years of Age.

XLIV. Tho' ſeveral other things might here deſerve to be conſider'd, yet I ſhall only inſiſt upon the difference between the Antediluvian Air, and that ſince the Flood, to give an Account of this Propoſition. The Conſideration of the Pure, Unmixed, Equable, and Gentle Conſtitution of the former; compar'd with the Groſs, Thick, Heterogeneous, Mutable, and Violent Condition of the latter, of it ſelf affording a ſufficient Solution of this Difficulty. That Air which is drawn in every Breath; whoſe included Particles, 'tis probable, inſinuate themſelves continually into our Blood, and the other Fluids of our Bodies, and on which all Experience ſhews human Life and Health exceedingly to depend; being at the Deluge chang'd from a Rare and Thin, to a Thick and Groſs Conſiſtence; from an equability or gradual and gentle warmth and coolneſs of Temperature, to extremity of Heat and Cold; and that with the moſt ſudden and irregular ſteps from one to another: From True and Pure Air, or an Homogeneous Elaſtical Fluid, to a mix'd and confuſed *Compoſitum* or Atmoſphere, wherein all ſorts of *Effluvia*, Sulphureous, Nitrous, Mineral and Metallick, *&c.* are contain'd. Which Circumſtances, if there were no other, will, I imagine, give a ſatisfactory account of the mighty difference as to the point of Longevity between the

Antediluvians and thoſe which ever ſince have dwelt on the Face of the Earth. We may obtain ſome ſmall and partial Reſemblance of it in a Perſon who had liv'd many Years upon the Top of a high Mountain, above the Clouds and Steams of our Earth, and whoſe temperament of Body was peculiarly diſpos'd for ſo Pure, Thin, and Undiſturb'd an *Æther* as there he enjoy'd; and afterward were confin'd to the moſt Foggy, Marſhy, and Stinking part of the Hundreds in *Eſſex*, or of the Boggs in *Ireland*. What Effect in Point of Life and Health ſuch a Change muſt have on the Perſon before-mention'd, 'tis not difficult to imagine: And as eaſy, on a like compariſon of the *Antediluvian Æther*, and the preſent *Atmoſphere*, to account for the Propoſition before us; and ſhew as well why Men dye at all uncertain Periods of Years, and have, while they live, a precarious State of Health, with frequent Sickneſſes; as why none reach any whit near the long Ages of thoſe that before the Deluge continu'd in Health and Security for near a thouſand Years together.

XLV. Tho' the *Antediluvian* Earth was not deſtitute of leſſer Seas and Lakes, every where diſpers'd on the Surface thereof; yet had it no Ocean, or large receptacle of Waters, ſeparating one Continent from another, and covering ſo large a Portion of it, as the preſent Earth has.

XLV. From the Original Formation of the Earth above deſcrib'd, and its unequal ſubſidence into the Abyſs beneath, while in the mean time vaſt quantities of Vapours were ſuſtain'd above, and afterwards let fall upon the Earth, its Surface would be unequal; its loweſt Valleys fill'd with Water; and a truly Terraqueous Globe would ariſe. But theſe two plain Reaſons may be aſ-

ſigned

ſign'd why any great Ocean were not to be expected at the ſame time. (1.) So vaſt and deep a Valley as the Ocean implies, is not in reaſon to bederiv'd from ſuch a regular Formation of the Earth from a *Chaos*, as we have above deſcrib'd. No good reaſon being aſſignable, why in ſuch a confus'd Mixture as we call a Chaos, the parts ſhould be ſo ſtrangely diſpos'd, that on one Side, all the Upper Orb for ſome ſcores of Degrees, and ſome thouſands of Miles together, ſhould be Denſer and Heavier than the reſt, and by its ſinking deepeſt into the Abyſs, produce the vaſt Channel of the Ocean; while on the other ſide the ſame Orb, for as many Degrees and Miles, ſhould be univerſally Rare and Light enough to be very much extant, and compoſe a mighty Continent, as the caſe is in our preſent Earth. Tho' the *Atmoſphere* of a Comet be ſo truly Heterogeneous, and its Opake or Earthy Maſſes ſo unequally ſcatter'd Abroad on the different ſides thereof, as even, ſetting aſide the inequality of the Denſity and Specifick Gravity of the ſeveral Columns, might compoſe an Orb of different Thickneſs or Craſſitude, and ſo cauſe an unequal Orb on the Face of the Abyſs, like that we before ſuppos'd it originally to have been; yet ſo mighty an Inequality, as the preſent Diviſion of the Earth into an Ocean and Continents muſt ſuppoſe, is by no means to be allow'd in the primitive Chaos; nor would, I ſuppoſe, by any be aſſerted, if the Generation of thoſe grand Diviſions of our Globe were otherwiſe accountable: Which on our Principles being ſo eaſily done, as will ſoon appear, no reaſon can plead here for their Primitive Introduction. And ſuch thoſe Agitations and Motions of Parts viſible in ſome ſort now in Comets Atmoſpheres, and ſo

be however granted in the Digeſtion of its Parts at firſt, muſt mix and jumble the Parts together to a degree ſufficient to prevent ſo ſtrange an Inequality, as the Original Exiſtence of the Ocean and Continents muſt needs imply. However, (2.) A main part of the Quantity of Water preſerv'd above Ground was no other, as we have ſhew'd, than what the Air at once was able to ſuſtain, during 9 or 10 Months ſpace; the Day-time of the ſecond Period of the Creation: Which how inſufficient it muſt have been to the filling of the great Ocean, is eaſily underſtood. Which things conſider'd, the Abſence of the Ocean, as well as the Exiſtence of Seas, is very eaſily accountable in the Antediluvian World.

CHAP. IV.

A Solution of the Phænomena *relating to the* Univerſal Deluge, *and its Effects upon the Earth.*

XLVI. In the ſixteenth or ſeventeenth Century from the Creation, there happen'd a moſt extraordinary and prodigious Deluge of Waters upon the Earth.

XLVI. WHatever Difficulties may hitherto have rendred this moſt noted *Cataſtrophe* of the Old World, that it was *deſtroyed by Waters*, very hard, if not wholly inexplicable without an Omnipotent Power, and Miraculous Interpoſition: Since the Theory of Comets, with their Atmoſpheres and Tails is diſcover'd,

Vid Fig. 1, &4, & 7.

cover'd, they muſt vaniſh of their own accord. For if we conſider that a Comet appears to be no other than a *Chaos*; including the very ſame Bodies, and Parts, of which our own Earth is compos'd; that the outward Regions of its *Atmoſphere* are plain Vapours, or ſuch a ſort of Miſts as we frequently ſee with us; and the *Tail* a Column of the ſame Vapours, rarified and expanded to a vaſtly greater degree, as the Vapours which in the cleareſt Days or Nights our Air contains at preſent, are; and that withal ſuch a Comet is capable of paſſing ſo cloſe by the Body of the Earth as to involve it in its Atmoſphere and Tail for ſome time, and leave prodigious Quantities of the ſame Condenſed and Expanded Vapours upon its Surface; we ſhall eaſily ſee that a Deluge of Waters is by no means an impoſſible thing; and in particular that ſuch an individual Deluge as to the Time, Quantity, and Circumſtances which *Moſes* deſcribes, is no more ſo; but fully accountable that it *might* be, nay almoſt demonſtrable that it really *was*. All which the *Solutions* following will, I think, give an eaſy and mechanical account of.

XLVII. This prodigious Deluge of Waters was in part occaſion'd by a moſt extraordinary and violent Rain, for the ſpace of forty Days and as many Nights, without Intermiſſion.

XLVII. When the Earth paſſed clear through the *Atmoſphere* and *Tail* of the Comet, in which it would remain for about two Hours (as from the Velocity of the Earth, and the Craſſitude of the ſaid *Tail* on Calculation does appear) it muſt acquire a large *Cylindrical* Column of Vapours, whoſe Baſis were ſomewhat larger than one of the Earth's greateſt Circles, and whoſe Altitude were equal to the Diameter of the Comet's Atmoſphere: *Vid.* Fig. 4.

ſphere. Which Vapours would be impeded from deſcending towards the Sun, by the Earth's Interpoſition and Reception of the ſame, and by the attractive Power of the Earth it ſelf withal, and ſo would fall down with great Violence upon its Surface. A great part of which being in a very Rare and Expanded Condition, after their Primary Fall, would be immediately mounted upward into the Air, and afterward deſcend in violent and outragious Rains upon the Face of the Earth. All thoſe Vapours which were rarer and lighter than that Air which is immediately contiguous to the Earth, muſt certainly aſcend to ſuch a height therein, where its Denſity and Specifick Gravity were correſpondent (as far as that Croud of their fellow Vapours, with which the Air was oppreſs'd, would give leave;) and ſo afterwards, as they cool'd, thicken'd, and were collected together, like our preſent Vapours muſt deſcend in moſt prodigious Showers of Rain for a long time afterwards, and very naturally occaſion that forty Days and forty Nights Rain mention'd in the Propoſition before us. As to the ſudden Condenſation of the Vapours, from the Comet upon their firſt Fall, whether by the Air or Earth, which has been alledg'd againſt the continuance of the 40 Days Rain; be it never ſo evident and univerſal, 'tis of ſmall conſequence, ſince 'tis plain their own Heat muſt rarify vaſt Quantities of them again, and occaſion their Elevation into the Air again immediately. And tho' it may ſtill farther be urg'd that in this Caſe the firſt violent Fall would it ſelf, in an inſtant do the buſineſs of the Deluge, without any occaſion for theſe great and long Rains of 40 Days; yet the Anſwer is ſtill eaſy, that though the Primary violent Fall of the Vapours were in leſs

than

than a Day's time, as has been ſhewn, yet becauſe as many would immediately riſe again as the Air could hold, here is a fund abundantly ſufficient for the moſt violent 40 Days Rain imaginable: And tho' the Vapours did originally fall in ſo ſhort a time, and with ſuch violence on that Hemiſphere of the Earth expoſed to them, as *there* to do the buſineſs of the Deluge immediately, yet becauſe the Regions near the Ark were not in that Hemiſphere, *their* Deluge, with which we are principally concern'd, muſt ariſe from the 40 Days Rain ſucceeding, and from the flowing in of the Waters from thoſe other Parts of the Earth on which they firſt fell.

XLVIII. This vaſt Quantity of Waters was not deriv'd from the Earth or Seas, as Rains conſtantly now are; but from ſome other Superior and Celeſtial Original.

XLVIII. This is already evident from what has been juſt now ſaid: The ſource of all theſe Rains being one of thoſe Superior or Celeſtial Bodies which we call Comets; or more peculiarly the Atmoſphere and Tail thereof.

XLIX. This vaſt Fall of Waters, or forty Days Rain, began on the ſixth Day of the Week, or *Friday* the Twenty-eighth Day of *November*, according to the preſent *Hebrew* Chronology; or on *Monday December* the 2d, according to the exacter Chronology: Being the Seventeenth Day of the Second Month from the *Autumnal Equinox*.

XLIX. This has been already explain'd in effect, in the Hypotheſis hereto relating; where it was prov'd, that a Comet on that very Day here nam'd paſs'd by the Earth; and by conſequence began thoſe Rains which for the ſucceeding forty Days ſpace continued without any Interruption. Hypoth. xi. prius.

L. The

L. The other main cauſe of the Deluge, was the breaking up the Fountains of the great Abyſs, or the cauſing ſuch Chaps and Fiſſures in the upper Earth, as might permit the Waters contain'd in the Bowels of it, when violently preſs'd and ſqueez'd upwards, to aſcend, and ſo add to the Quantity of thoſe which the Rains produced.

Lem. 85, 86. prius. Fig. 7.

L. This has in part been explain'd in the *Lemmata* hereto relating; and will be more fully underſtood from the Figure there alſo referr'd to. For let a d b c repreſent the Earth, moving along the Ecliptick G H, from G towards H. 'Tis evident that the Figure of the Earth before the approach of the Comet, as far as 'tis here concern'd, was Spherical. But now, let us ſuppoſe the Comet b i D h (as it was deſcending towards its *Perihelion*, along its *Trajectory* E F, from E towards F) to approach very near, and arrive at the neareſt Poſition, repreſented in the Figure. 'Tis evident that this Preſence of the Comet would cauſe a double Tide, as well in the Seas above, as in the Abyſs below. That in the Seas being leſs conſiderable in it ſelf, and not to our preſent Purpoſe, need not be taken any farther notice of: But the other would be vaſtly great, (ſuppoſe 5 or 6 Miles high above its former Poſition) would produce mighty Effects on the Orb above it, and ſo deſerves a nicer Conſideration in this place. As ſoon therefore as the Comet came pretty near, (as ſuppoſe within the *Moon's* diſtance,) this double Tide would begin to riſe, and increaſe all the time of its approach, till the Comet was neareſt of all, as in the Figure. And then or rather a little after, theſe Tides, or double Protuberances of the Abyſs, would be at their utmoſt height. So that the Surface of the Abyſs, and of its incumbent Orb of Earth, would put

on

on that *Elliptick*, or rather truly and exactly Oval Figure, under which 'tis here represented. Lem. 85. prius. Now, 'tis certain, that this Spheroid Surface of the Abyss is larger than its former Spherical one; 'tis also certain, that the Orb of Earth which rested on this Abyss must be oblig'd to follow its Figure, and accommodate it self to this large *Oval*; which being impossible for it to do while it remain'd solid, continu'd, and conjoin'd, it must of necessity enlarge it self, and by the violent force of the increasing Surface of the Abyss be stretch'd, crack'd, broken, and have innumerable Fissures made quite through it, from the upper to the under Surface thereof, nearly perpendicular to the same Surfaces; or rather the Tide must open and enlarge those Fissures which were first produc'd at the Commencement of the Diurnal Rotation. So that this Orb of Earth, which originally, in its primary Formation, was Spherical, its inward *Compages* or *Strata* even, conjoin'd and continual; which had afterward, at the Commencing of the Diurnal Rotation, been chang'd into an Oblate Spheriod, and at the same time been thereby in a less degree broken, chap'd, and disjointed; by that time its wounds had been well healed, and it was in some measure settled, and fix'd in such a Condition, receiv'd this new Disruption at the Deluge. Its old Fissures were open'd, and the Fountains of the Abyss (most Naturally and Emphatically so stil'd, according to Dr. *Woodward*'s Account of the Origin of Fountains) broken up; and sufficient Gaps made for a Communication between the Abyss below, and the Surface of the Earth above the same, if any occasion should be given for the Ascent of the former, or Descent of any thing from the latter. And here 'tis to be noted, that these Chaps and Fis-

Vid. Essay Pa. 121, &c. and Pa. 152.

Fiſſures, though they were never ſo many or ſo open, could not of themſelves raiſe any Subterraneous Waters, nor contribute one jot to the drowning of the Earth, if the upper Orb had been long ago ſettled. and ſunk as far into the Abyſs as the Law of *Hydroſtaticks* requir'd; and whether 'twere entire or broken, would cauſe no new preſſure; and no more than maintain its *prior* Situation on the Face of the Deep. Theſe *Fiſſures* had been in a leſs Degree open and extended in their Original Generation, when the Diurnal Rotation began, and was there no remarkable Deluge, and perhaps no Deluge at all: for tho' I ſuppoſe the lower *Strata* of the Earth were conſolidated the firſt Day or Year of the Creation, and ſo upon the deſcent of the Terreſtrial Matter could not ſink ſo low as the Law of *Hydroſtaticks* requir'd, and would therefore upon the original Opening of the Fiſſures attempt to raiſe the Waters, yet the preſſing of this Quantity of Earthy Matter of the ſecond, and of the Waters too of the third Day, might not be ſufficient to raiſe the Subterraneous Waters high enough, ſo as to cauſe them to iſſue out at the very tops of thoſe Fiſſures. So that tho' this breaking up of the Fountains of the Deep was a prerequiſite Condition, and abſolutely neceſſary to the Aſcent of the Subterraneous Waters, yet is it not to be eſteem'd the principal cauſe or efficient thereof: *That* is to be deriv'd from another original, and is as follows. As ſoon as the preſence of the Comet had produc'd thoſe vaſt Tides, or double elevation and depreſſion of the Abyſs, and thereby disjointed the Earth, and caus'd the beforemention'd patent holes or breaches quite through the Body of it, the Fall of Waters began, and quickly cover'd the Earth, and crouded the Air

with

with vaſt Quantities thereof: Which Waters being adventitious or additional ones, and of a prodigious Weight withal, muſt preſs downward with a mighty Force, and endeavour to ſink the Orb of Earth deeper into the Abyſs, according as the entire Weight of each Column of Earth, and its incumbent Water together, agreeably to the Law of *Hydroſtaticks*, did now require. And had the Earth at it firſt ſubſiding into the Abyſs, been looſe, ſeparate, and unfix'd, ſo as to admit the Abyſs between its Parts, and ſuffer a gentle Subſidence of the Columns of the Earth entirely in the requiſite Proportion, we could ſcarce have expected any elevation of the Subterraneous Waters. But ſince, as we have often obſerv'd, the lower *Strata* of the Earth were in good meaſure ſettled, faſtened, and conſolidated together before the upper were all form'd, the whole *Compages* would Archwiſe ſuſtain it ſelf much higher than the Law of Specifick Gravity would otherwiſe require; and ſo upon any Diſruption of the upper Earth, its ſeveral Columns, as there was room, would ſettle themſelves lower than they were at firſt, and raiſe any Fluid contain'd in its Fiſſures upwards. And withal the new and vaſt preſſure of the Additional Waters from the Comet upon the Orb of Earth would certainly force any Fluid towards the Surface, or any way, whereſoever there were a paſſage for it: To which therefore the Breaches, Holes, and Fiſſures ſo newly generated, or rather opened afreſh by the Violence of the Tides in the Abyſs beneath, would be very ready and natural Outlets; through which it would Aſcend with a mighty force, and carry up before it whatever was in its way, whether Fluid or Solid, whether 'twere Earth or Water. And ſeeing, as

Lem. 78, 79. priùs.

we

Solut. 6. priùs. we before ſaw, the lower Regions of the Earth were full of Water, pervading and repleniſhing the Pores and Interſtices thereof; which Waters on the opening of the Fiſſures would from all Sides ouze into, and fill up the inferior parts of the ſame, and reſt on the face of the Abyſs; the denſe Fluid of the Abyſs, in its violent Aſcent through the Fiſſures, would carry before it, and throw out at the Tops of the ſaid Fiſſures great Quantities of the ſame; and if its force were any where ſufficient, would caſt it ſelf alſo out at the ſame Paſſages; and by both or either ways would add to the quantity of the Waters already on the face of the Earth, and become a freſh Augmentation of that Deluge, which began already to overwhelm and deſtroy the Inhabitants thereof. For the better Apprehenſion of this Matter, let us imagine the following Experiment were made. Suppoſe a *Cylinder* of Stone or Marble fitted ſo exactly to a hollow *Cylindrical* Veſſel, that it may juſt Aſcend or Deſcend freely within it: Let the *Cylinder* of Stone or Marble have ſmall Holes bored quite through it, parallel to the *Axis* thereof: Let the Veſſel be fill'd half full of Water; and the *Cylinder*, as gently as you pleaſe, be put into the Veſſel, till it touch the Water: Let then each of the Holes through the *Cylinder* be fill'd in part with Oyl, or any other Fluid lighter than the Water, to ſwim upon the Surface thereof: Things being thus provided, you have the very caſe of the Deluge before you; and what Effects you here, in a leſſer Degree, will obſerve, are but the Repreſentations of thoſe greater and more remarkable ones of which we are now ſpeaking. For as the Weight of the *Cylinder* preſſing upon the Surface of the Water would ſqueeze the Oil

Oil upon its Surface through the Holes, and caſt it out thereat with ſome Violence, and caſt it ſelf too out at the ſame Paſſages, if the Holes were not too high, in compariſon to the Quantity of the entire Preſſure upon the Surface of the Water; juſt ſo the Weight of the Columns of Earth, augmented by the additional Waters of the Comet, would ſqueeze and preſs upon the Surface of the *Abyſs*; which being a fluid Maſs and incapable of ſuſtaining a Preſſure in one Part, without equally communicating it to all the reſt, any way whatſoever, muſt burſt out where-ever ſuch Preſſure was wanting, and throw it ſelf up the *Fiſſures*; carrying up before it, and throwing out upon the Earth thoſe Waters which, (like Oil on the Water in the Experiment) lay upon its Surface, and cover'd the ſame; and thereby increaſing the Greatneſs of the Deluge, and having a Share in that Deſtruction which it brought upon the Earth. All which, I think, gives us a clear, eaſy, and mechanical Account of this (hitherto inexplicable) *Secondary* Cauſe of the Deluge, the breaking up the Fountains of the great Deep, and thereat the elevating the ſubterraneous Waters, and bringing them out upon the Face of the Earth. This, I ſay, would be the Caſe, if in the firſt Formation of Things, the lower *Strata* of the Columns of the Earth were conſolidated, and could not admit the denſe Fluid, or deſcend farther in it, *before* the upper *Strata* were form'd; altho' if that Conſolidation had been deferr'd till all the *Strata* were compleated, as I at firſt ſuppos'd, no after Elevation of the ſubterranean Fluids or Waters contain'd in the *Fiſſures* could obtain, as the Learned Dr. *Keill* has well prov'd.

Newt. p. 290, &c.

Corollary 1. *These Chaps or* Fissures *at the Deluge would commonly be the same with those at the commencing of the* Diurnal Rotation: *It being easier to break the* Compages *of the Earth where it had once been broken already, and was never united well again, than in other Places were it was entire and continued: And those parts which sustain'd the force at the former Convulsion, would almost as well sustain this, of which we are now speaking, and preserve their former Continuity, still as they did before the Flood.*

Corollary 2. *Hence if these* Fissures *are the occasion and cause of Fountains, as Dr.* Woodward *very probably asserts, The* Antediluvian *and* Postdiluvian *Springs must be generally the very same; as arising from the same Original; so far as the Mutations at the Earth's Surface, to be afterward explain'd, would permit and allow in the case.*

Coroll. 3. *Since we have before shew'd, that the Mountainous Columns of the Earth are the looseſt, the leaſt compacted, and leaſt solid of all others, the Earth would be the most subject to the* Fissures *and Breaches in those Parts, and the generality of Springs and Rivers would now proceed from thence; unless the peculiar, stony, or other firm* Compages *of the same, prevented the Effects here mention'd, as sometimes perhaps might happen in the present case.*

Coroll. 4. *Hence 'tis evident, that there was no great Ocean, but only smaller Lakes and Seas, before the Flood. For otherwise the Tide or Flux of the Ocean would have been so great and violent, as to have superseded almost all the Designs of the ensuing Deluge, and have withal, without a Miracle, extremely endanger'd, if not certainly destroy'd, the* Ark, *and all those Creatures which were entring into it: Which*

the

the ſmaller Tides in the ſmaller Antediluvian *Lakes and Seas would not conſiderably affect, or diſturb.*

LI. All theſe Fountains of the great Deep were broken up on the very firſt Day of the Deluge, or the very firſt Day when the Rains began.

LI. This is very eaſily underſtood from the Space of time that the Comet was near the Earth. For the Duration of this Diſruption, or breaking of the Orb of Earth, occaſion'd by the nearneſs of the Comet, muſt be Commenſurate thereto; which, tho' we ſhould take in all the ſpace it was nearer than the Moon, could not poſſibly, as is eaſy to calculate, amount to Nine Hours; which is indeed much more than need be allow'd; and is yet ſufficiently within that *Days* ſpace which this *Phænomenon*, if occaſion were, could allow us to ſuppoſe; and ſo fully ſatisfies the ſame.

LII. Yet the very ſame Day, *Noah*, his Family, and all the Animals entred into the *Ark*.

LII. Tho' 'tis otherwiſe not a little ſtrange that the Entry into the Ark ſhould be deferr'd till this Day; yet 'tis clear and eaſy on the preſent *Hypotheſis*. For as to the Fountains of the great Deep which were broken up this Day, thereby the Earth and its Continents were only gradually and inſenſibly elevated; but no other Diſturbance given to *Noah* in his Entry into the Ark at the ſame time. The *Fiſſures* indeed were now made, but till the Weight of the Waters from the Comet could operate, 'tis probable no Water would from thence ariſe to diſturb him; and tho' they had, yet unleſs there were ſome of the great Fiſſures or Spouts juſt where he was, no Interruption could this Day be given him therefrom.

As to the Rains themſelves, tho' they all fell firſt upon the Earth within the compaſs of this Day, and ſo muſt cauſe a moſt prodigious Deſtruction and Confuſion upon the Earth where they ſo fell; yet the peculiar Situation of *China* where the Ark was, lying ſo much *Eaſtward* of the Center of this *Northern* Continent, did ſecure it. This Day, tho' ſo outragious and deſtructive a one to the Inhabitants of the other Parts of the Globe, was yet here fair and calm, as at other times: Which is thus demonſtrated. 'Tis evident that the *Gordyean* Mountains are ſituated not very far from the Center of our *Northern* Continent; or indeed ſomewhat to the *North-Weſt* from the ſame; that is, as will hereafter appear, pretty near the Point b, or rather ſomewhat above it; which Mountains were almoſt directly expos'd therefore to the Comet at its neareſt Diſtance, repreſented in the Figure. When the Comet therefore was moving from E to F, ſo ſoon as the Earth came within its *Atmoſphere* and *Tail*, a *Cylindrical* Column of Vapours would be intercepted, and bore off by the Earth in its Paſſage, whoſe Baſis were ſomewhat larger than a great Circle of the Earth, and whoſe Direction or *Axis*, from the compound Motion of the Comet, and of the Earth, were at about 35 or 40 Degrees of Inclination with the Ecliptick, or not very different from the Poſition of c d, the leſſer *Axis* of the Earth; that is, the firſt Fall of the Vapours would only affect one *Hemiſphere* of the Earth; that, namely, which were properly expos'd to their Deſcent; and the other would be not at all affected therewith. Now this *Hemiſphere* would be repreſented in the Figure by a d b; and the oppoſite one, which entirely eſcap'd at the ſame time by a c b. So that ſeeing the Ark,

Solut. 69. infra. Fig. 7.

Ark, or *China*, was much below the Point b; it would remain in the ſame during all the time of this firſt violent Fall of the Waters, and have a calm and quiet Day for the Entry thereinto; while the other Regions of the Globe were ſubject to ſo violent a Storm, and ſuch Fury of deſcending Vapours as no Age paſt or future had been, or were to be expoſed to. And conſequently, *Noah* had as fair and calm a time of entring into the Ark, with all his Family, and the other Animals, as could be deſir'd; when no other Parts of the Globe, but thoſe agreeing in ſuch a peculiar Situation with him, could have permitted the ſame. Which is I think, not a meer *Satisfactory*, but a very *Surprizing* Account of the preſent Propoſition.

Corollary. 1. *Hence the time of the breaking open of the Fountains of the Deep, and of the begining of the Rains, very nearly coincident therewith, is determin'd; and that agreeably to the* Moſaick *Hiſtory, much nearer than to a Day; (with which exactneſs we have hitherto contented our ſelves in the caſe.) And indeed to a few* Hours; *for ſeeing all the Fountains of the great Deep were broken up on this Day; ſeeing the forty Days Rain began on the ſame Day; ſeeing* Noah, *with all his Family, and all the other Creatures, entred on this ſelf-ſame Day into the* Ark; *all which certainly require a great part of a Day, and yet ſeem very incompatible; there is no other way but to aſſert, that tho' the breaking up of the Fountains of the Great Deep, and the Fall of the Waters, were coincident, and upon the ſame Day with the Entry into the* Ark, *as the Text moſt expreſly aſſerts; yet the Place where the* Ark *was, eſcap'd the immediate Effects of the ſame; and while the reſt of the Earth was abiding the Fury thereof, enjoy'd*

joy'd ſo calm, fair, and undiſturb'd a Day, as permitted their regular and orderly going into the Ark before the Waters overtook them. Which how exactly the preſent Hypotheſis *is correſpondent to, I ſhall leave the Reader to judge from what has been ſaid under this laſt Propoſition; according to which 'tis plain, that the Comet paſs'd by the Earth, broke up the Fountains of the Deep, and began the forty Days Rain about Noon; at which time, tho' the Waters fell with the greateſt Violence on the Earth, yet they affected the oppoſite* Hemiſphere *only: And this moſt nicely and wonderfully correſponds to the greateſt Accuracy of the preſent caſe, and of the* Moſaick *Hiſtory. So that now we may, agreeably both to the Sacred Hiſtory, and the Calculations from the preſent* Hypotheſis, *aſſert, that the Deluge began at the Meridian of* Pekin *in* China, *about Noon. Which Exactneſs of Solution, wherein not only the Day, but time of the Day aſſign'd from the* Moſaick *Hiſtory, is correſpondent to the preſent* Hypotheſis, *how remarkable an Atteſtation it is to the ſame, and how full a Confirmation of the moſt accurate Verity of the* Moſaick *Hiſtory, I need not remark; ſuch Reflections, when* Juſt, *being very* Natural *with every careful* Reader.

Coroll. 2. *Here is an Inſtance of the peculiar Providence of God in the Preſervation of the* Ark, *by ordering the Situation of it, ſo as to eſcape the Violence of the Thick Vapours in their firſt precipitate Fall, which otherwiſe muſt very probably have daſh'd it to pieces; for conſidering their Velocity of Motion, which indeed was prodigious, no leſs than about twelve hundred Miles in the ſpace of a Minute, 'tis not eaſy to ſuppoſe, that any Building could ſuſtain and preſerve it ſelf under the Violence thereof; which we ſee the* Ark, *by the peculiar Place of its Situation, about*

ſixty

ſixty or ſeventy Degrees East *from the Center of our* Northern *Continent, was wonderfully ſecured from, while the other* Regions *of the Earth were expos'd thereto, and in great meaſure, 'tis probable, deſtroy'd thereby.*

Coroll. 3. *Hence 'tis evident, That the place of the* Ark *in* China, *at the beginning of the Deluge, was its true one, and not any Mountain in or near* Armenia, *where at laſt it reſted. For had it been there ſeated, it had been expos'd to the Violence of the falling Vapours, and inſtead of a quiet Entry thereinto on this firſt Day of the Deluge, the* Ark *it ſelf, with all the Creatures that were to be preſerved in it, would have entirely periſh'd in the very beginning thereof.*

LIII. The Waters of the Deluge increas'd by degrees five Months, till their utmoſt Height; and then decreas'd by degrees ſtill longer, till they were clearly gone off the Face of the Earth.

LIII. While the 40 Days Rain continued, 'tis no wonder that the Waters increaſed; nor is it any great Wonder they ſtill increaſed afterward for a long time, ſince the other Waters, which came thro' the Fountains of the Great Deep, muſt then ſend out their Streams faſteſt, when the former Waters were the heavieſt, or at the end of the 40 Days Rain. Nor would theſe Streams be ſtopped, till by degrees the Columns of the upper Earth were ſettled ſufficiently into the denſe Fluid, to take off their great Preſſure, which might not be till a long time after the 40 Days Rain was over. This for the gradual Increaſe of the Waters: As to their gradual Decreaſe, that will be diſtinctly treated of hereafter.

LIV. The Waters of the Deluge were ſtill, calm, free from Commotions, Storms, Winds, and Tem-

peſts of all ſorts, during the whole time in which the *Ark* was afloat upon them.

Phænom. 41. prius. LIV. It has already appear'd, that there were no Storms, Tempeſts, or other violent Commotions in the *Antediluvian* Air till the Deluge; and that during the ſpace here referr'd to, none would ariſe, 'tis but reaſonable to allow. For, as to the firſt and principal Rain, it was, to be ſure, ſo conſtant, ſo downright, and ſo uninterrupted, that no little Commotion in the Air could have place; or if it had, could diſturb it, which is commonly the caſe of long and ſettled Rains with us at this Day. And as to the ſubterraneous Waters, aſcending with ſome Violence, they were confin'd to ſeveral particular Places, and not univerſal; and tho' they might cauſe ſome Commotions at the bottom of the Waters, yet might the Surface of the ſame, and the Air, be ſufficiently calm and undiſturb'd.

LV. Yet during the latter part of the Deluge, there was a conſiderable Wind, if not Storms and Tempeſts alſo.

LV. Seeing at the end of the Flood, Storms were to be expected; and ſeeing yet the *Ark*, which had been afloat ſo long, and was ſo ſtill, (the Waters being now at the very higheſt) was incapable of abiding a ſtormy Sea, as we prov'd under the former *Phænomenon*; there, at firſt view, appears the greateſt Danger imaginable, of its periſhing in the future immoderate and extraordinary Commotions. And this Danger is increaſed by this Reflection; that as probably it had been afloat during the moſt part of the 150 Days, while the Waters were gradually and gently augmenting; ſo one would imagine ought it to be,

for

for at leaſt as many Days, during the at leaſt as gentle and gradual decreaſe of the ſame afterwards: *i. e.* The Ark ought to have been at leaſt ſo long afloat in the Stormy, as it had been in that Calm part of the Deluge. But this Difficulty, which is to appearance ſo inſoluble, will ſoon vaniſh, if we conſider that the Ark reſted upon one of the *Gordyean* Mountains, the *then* higheſt in the World. For ſeeing the Waters prevailed above the ſame Mountain 15 Cubits only, a great part of which Depth of Water would be drawn by the Ark it ſelf; upon the very firſt ceaſing of the riſe of the Waters from the Abyſs beneath, which permitted the leaſt ſubſiding and diminution of the Deluge, the Ark muſt immediately reſt upon the Ground, and thereby ſecure it ſelf from the impending Storms. And that accordingly it did ſo at the time aſſign'd, on the Concluſion of the 150 Days, or the very ſame individual Day when the Wind began, is particularly and expreſly obſerv'd and affirm'd by *Moſes*: Which being a very remarkable Coincidence, exactly agreeable to the preſent *Hypotheſis*, as well as to the Sacred Hiſtory, and of very conſiderable Importance, I ſhall ſet down the Words at large, as follows:

Vid. Solu. 61. infrà.

The Waters prevailed upon the Earth an hundred and fifty Days (*viz.* from the ſeventeenth of the ſecond, to the ſeventeenth of the ſeventh Month.) *And God remembred* Noah, *and every living thing, and all the Cattle that was with him in the Ark: And God made a Wind to paſs over the Earth, and the Waters aſſwaged. The Fountains alſo of the deep, and the Windows of Heaven were ſtopped, and the Rain from Heaven was reſtrain'd. And the Waters returned from off the earth continually: And after the End of the hundred and fifty Days, the Waters*

Gen. vii. 20.

Gen. vii. ult. & viii. 1, 2, 3, 4.

were

were abated. And the Ark reſted in the ſeventh Month, on the ſeventeenth Day of the Month upon the Mountains of Ararat.

Corollary. *Hence 'tis obvious to remark the wonderful Providence of God for the Preſervation of the Ark, and the ſole Remains of the Old World therein contain'd, in ordering all Circumſtances ſo, that it was afloat juſt all the calm Seaſon of the Deluge, but as ſoon as ever any tempeſtuous Weather aroſe, was ſafe landed on the top of the* Gordyean *Mountains.*

LVI. This Deluge of Waters was Univerſal in its extent and effect; reaching to all the Parts of the Earth, and deſtroying all the Land Animals on the entire Surface thereof; thoſe only excepted which were with *Noah* in the Ark.

LVI. This might juſtly have been made a Corollary of the next Propoſition, (for if the Waters in any one Region, much more a compleat Hemiſphere, exceeded the Tops of the higheſt Mountains, it would certainly diffuſe it ſelf and overflow the other alſo:) But being capable in the preſent Hypotheſis of a ſeparate Proof, deſerves a diſtinct Conſideration. The Waters which were deriv'd from the Comet, the principal Source of the Deluge, were more than half univerſal; they primarily falling upon more than one half of the Surface of the Earth. The Subterranean Waters being in good meaſure the proper effect of the Weight of the Waters proceeding from the Comet, would alſo be as univerſal as they at the leaſt, if not more. And withal, if we duly conſider the Velocity of the Earth's Diurnal Rotation, and that the Maſs of newly acquir'd Vapours was not at firſt partaker of the ſame, but was by degrees to receive the impreſſion thereof, we ſhall with eaſe apprehend, that a few of the firſt Rotations would wind or

wrap

wrap theſe, as well as the other Vapours, *quite round* the Earth, and thereby cauſe a very equal diſtribution of them all in the *entire Atmoſphere*, and at laſt render the Rains very evenly *Univerſal*. To which uniform Diſtribution the Nature of the Air it ſelf, as at preſent I ſuppoſe it does, might contribute: Such an Elaſtical Fluid as the Air ſcarce ſuffering a laſting Denſity or Croud of Vapours in one Region, without communicating ſome Part to the others adjoining; that ſo a kind of *Equilibrium* in the Weight, Craſſitude, and Denſity of its ſeveral Columns may be preſerv'd through the whole. So that at laſt, the Deluge muſt have been Univerſal, becauſe every one of the Cauſes thereof appear to have been truly ſo.

LVII. The Waters at their utmoſt Height were fifteen Cubits above the higheſt Mountains, or about 3 Miles above the neighbouring Plains, or 6 Miles perpendicular above the common Surface of the Earth.

LVII. In order to make ſome eſtimate of the Quantity of Water, which this Hypotheſis affords us: Let us allow that the Rarity of the Tail of the Comet is ſo great, as indeed it is, that it will not afford us any Quantity conſiderable to our preſent Purpoſe; and let us ſuppoſe alſo that the Quantity of Water iſſuing out of the Fiſſures or Fountains of the great Deep will not afford us above one ſixth Part; I mean both theſe in Compariſon of a Deluge of 6 Miles height perpendicular, which we here ſeek for. And let us examine the quantity of Vapour deriv'd from the Atmoſphere of the Comet which is one Main Source and Fountain of this mighty Deluge, and ſee how far it will go in our preſent Buſineſs. If we ſuppoſe our upper Cruſt of Earth, and its denſe Fluid taken together to be 200 or

900 Miles thick, and that it were diſpers'd in a Sphere of 80,000 Miles in Diameter, as is the caſe of a Comet's Atmoſphere, it would be then of almoſt as great Denſity as that of our Air here 7 or 8 Miles above us. Let us therefore ſuppoſe it to be ſo, and by conſequence about 4000 times as rare as Water, and that the Earth paſs'd through the ſame for 80,000 Miles together, as it muſt do becauſe of the Comet's Center's coming within 10,000 Miles of us. Our Earth therefore would intercept and receive on it ſelf a *Cylindrical* Column of Vapours, whoſe Baſis were at leaſt equal to that of a great Circle on the Earth, and whoſe Altitude were 80,000 Miles. Now *Archimedes* has demonſtrated that the entire Superficies of a Sphere or Globe is four times as large as the *Area* of one of its great Circles; and by conſequence the Column of Vapour would be but a quarter ſo high when ſpread over the Surface of the whole Earth, or only 20,000 Miles high: And when turn'd into Water, and reduc'd thereby to the 4000 part of its ancient Space, would cover the Earth about 5 Miles deep, even tho' there were no Mountains extant above the common Surface of the Plains and Seas. So that when allowance is made for them, as well as for the Quantities ariſing from the Tail of the Comet, and from the Fiſſures or Fountains of the Deep, the whole Quantity will cover the Earth full 6 Miles perpendicularly; which is that very height of the Waters which in this Solution was to be accounted for.

Corollary. *If the ſeveral particulars requiſite to the nice adjuſtment of thoſe Computations were more exactly enquir'd into, ſome Light on the preſent* Hypotheſis, *might be afforded to the Denſity of the* Atmoſpheres *and* Tails *of Comets, which is hitherto unde-*

determin'd; the conſideration of which matter muſt be referr'd to Aſtronomers.

LVIII. Whatever be the height of that *Gordyean* Mountain whereon the *Ark* reſted *now*; it was *at that time* the higheſt of all others, at leaſt in thoſe Parts of the World.

LVII. If we conſult the Figure here referr'd to, we ſhall eaſily apprehend the Reaſon of this, otherwiſe, ſtrange Phænomenon. For ſeeing this Mountain was the higheſt in *Aſia*, or in the middle Regions of our Continent; and ſeeing withal that entire Continent, and chiefly the middle Regions thereof, were elevated by the greateſt protuberance of the Abyſs d b c above any other correſpondent parts of the whole Globe, the abſolute or entire height of this Mountain then, would ariſe not only from its proper Altitude above the neighbouring Plains, but alſo from the Elevation of the whole Continent, or peculiarly of its middle Regions above the Ancient Surface of the Plains and Seas; which is the true reaſon why I ſuppoſe this Mountain to be ſix Miles high above the common Surface of the Earth; while it can hardly be ſo much as three Miles above the Neighbouring Plains. So that by this Advantage of Situation, it was at the time here concern'd, higher not only than its Neighbours, which its own Elevation was ſufficient for, but than any other on the Face of the whole Earth: Some of which otherwiſe it could, I believe, by no means have pretended to match, much leſs to out-do in Altitude. Now altho' the preſence of the Comet which produc'd theſe Tides in the Abyſs, and elevated the entire Continents above their ancient Level, did not remain after the Diſruption of the Fountains of the Deep on the firſt Day of the Deluge; yet the Effect thereof the Elevation of the Continents above their Level, Fig. 7.

vel, would not ſo ſoon, nay, would ſcarce ever entirely ceaſe. We know by common Obſervation, that if a Solid or Settled Maſs of Bodies be torn or pull'd in pieces, 'tis not eaſy to put every thing into its place, and reduce the whole to the ſame fix'd Limits, it had before. If a ſolid compacted Mound of Earth were once ſhatter'd and divided, were levell'd and remov'd, tho' afterward every individual Duſt of the former Earth were laid together again upon the very ſame Plot and Compaſs, yet would it not be immediately confin'd within its ancient Dimenſions; its height would be at firſt conſiderably greater than before; and tho' that in length of time would be by Degrees diminiſh'd, by the gradual ſettling and crouding together of the parts, and ſo ſome approaches would be made thereby towards its ancient Denſity and leſſer Elevation; yet neither would be entirely attain'd; in any moderate ſpace of time at leaſt. And this is the very Caſe before us. That Oval Figure which the Orb of Earth was ſtretch'd to at the Deluge, would remain for a conſiderable time, and be many Years in ſettling ſo cloſe together, that it might afterward remain fixt and firm for the following Generations; before which time 'tis evident, that the Regions near the Center of our *Northern* or larger Continent, were the higheſt, and thoſe at 90 Degrees diſtance every where the loweſt; and by conſequence at the time of the Ark's reſting, the *Gordyean* Mountains near the Center of the *Northern* Continent, were elevated above the reſt, and particularly above the *Pike of Teneriff*, which ſeems to be at preſent the higheſt of all others. And thus that *terrible Phænomenon* is ſolv'd, which the Reverend Mr. *Warren* was ſo puzzled with, that even on the Allow-

ance

ance of ſo much Miracle as the *Creation* of the Waters of the Deluge, and the *Annihilation* of the ſame afterward, yet could he not account for the Letter of *Moſes* without a forc'd and ungrounded Suppoſition, to the ſame purpoſe with the Propoſition before us: As you will find him, and not without reaſon, very *emphatically* expreſſing himſelf on this occaſion. Geolog. p. 329, 330. and Defenſe, p. 171, 172.

Corollary 1. *Here is a viſible inſtance of the Divine Providence for the Preſervation of the Remains of the Old World, by ordering the building of the* Ark *juſt* Eaſtward *of, and at a due diſtance from, that which would be the higheſt Mountain in the World; that ſo upon the very firſt ceaſing of the* Rains, *and the beginning of the Winds and Storms, it might immediately be ſafe on the Top thereof. I ſay* Eaſtward of *as well as at a due* Diſtance from *the* Gordyean *Mountains: For the Waters that fell upon the Earth not being at firſt able to keep pace with its Diurnal Motion from* Weſt *to* Eaſt, *muſt needs move reſpectively from* Eaſt *to* Weſt, *and ſo carry the* Ark *along with them* Weſtward. *To ſay nothing of the Tides, whoſe Motion would alſo conſpire to the ſame effect with the other. And this will be the more eaſily believ'd, if we conſider what has been already advanc'd, that* Noah *was the firſt Planter of* China *after the Deluge, and therefore in probability had been the Inhabitant of thoſe Parts before. And 'tis evident that* China *lies directly* Eaſt *from the* Gordyean *Mountains, and at a due diſtance from the paſſing from thence thereto while the* Ark *floated,* 150 *Days before it landed on thoſe Mountains.* Schol. poſt Hypoth. 8. priùs.

Coroll. 2. *The ſame careful and wiſe Providence is conſpicuous in the ſo accurately adjuſting all the Circumſtances of the Deluge, that it ſhould be high enough to deſtroy the whole Stock of the dry-land Animals; and yet but juſt ſo much above the* Gordyean *Moun-*

Mountains, as permitted the Ark to reſt at the very firſt decreaſe of the Waters, and the commencing Perturbations of the Air, and the Waves neceſſarily enſuing, which otherwiſe muſt ſtill have deſtroy'd it, notwithſtanding the Advantage of its Situation before obſerv'd.

Coroll. 3. *Suppoſing the Truth of our firſt* Poſtulatum, *of the Verity of the Letter of the* Moſaick *Hiſtory; as certain as is the greater height of the* Pike of Teneriff, *or of any other Mountain in the World, above that of the* Gordyean *Mountains* now; (*of which I ſuppoſe there is no great queſtion*) *ſo certain is it* (*bating unknown Cauſes, and a miraculous Power, as is always in ſuch Caſes to be ſuppos'd*) *that a Comet was the cauſe of the* Moſaick *Deluge. For 'tis certain, by the plaineſt Deduction from the expreſs words of Scripture, that the Mountain on which the* Ark *reſted was at that time the higheſt in the World. 'Tis therefore certain, that the Continent or* Baſis *on which the* Gordyean *Mountains ſtand, was elevated higher at the Deluge than 'tis at preſent: And 'tis alſo certain, that no Body or Maſs of Bodies in the whole World can elevate or depreſs a Continent of the Earth, but ſuch as are capable of approaching the ſame; or in other Words, but Comets; and conſequently a Comet* did *approach near the Earth at the ſame time aſſigned, and was the cauſe of the Deluge. Which Chain or Connexion I take to be ſo ſtrong, that I believe 'twill not be poſſible to evade its force; and ſo what on other Arguments has been already eſtabliſh'd, is fully confirm'd by this.*

Coroll. 4. *'Tis equally demonſtrable, that the Upper Orb or Habitable Earth is founded on a Subterraneous* Fluid, *denſer and heavier than it ſelf: This circumſtance being abſolutely neceſſary to account for the* Phænomenon *we are now upon. For if the internal Regions of the Globe were firm and ſolid,* (*as is*

is commonly ſuppos'd ; tho' wholly gratis, *and without ground:) Tho' the Comet had paſs'd by, yet there could have been no Elevation of any Continent, and the Propoſition before us muſt ſtill have remain'd Inſoluble.*

LIX. As the Fountains of the great Deep were broken up at the very beginning of the Deluge, ſo were they ſtopp'd at the end of 150 Days, on the ſeventeenth Day of the ſeventh Month.

LIX. That the Fountains of the great Deep in all the Regions near the *Ark*, to which this *Phænomenon* does properly belong, would be ſtopped at this very time is plain, becauſe now, and not before nor after, the higheſt part of the vaſt Tide of the Waters of the Deluge was juſt arrived thither, and ſo ſtopp'd the Exit of the Waters, till then aſcending from the inward Parts of the Earth; and by oppoſing their Courſe, and immediately preſſing upon and running down thoſe *Fiſſures* into the Bowels of the Earth, would effectually change the face of Affairs there: would ſtop the Fountains of the Deep, and make thoſe very Outlets whence the ſubterraneous Waters had till then ſpouted forth, become the Inlets to the ſame Waters, and to all the reſt alſo on the Face of the Earth ; and the Means of draining them all off the ſame by degrees afterwards.

LX. The Abatement and Decreaſe of the Waters of the Deluge was firſt by a Wind, which dried up ſome: And, ſecondly, by their Deſcent thro' thoſe Fiſſures, Chaps and Breaches, (at which part of them had before aſcended) into the Bowels of the Earth, which received the reſt. To which latter alſo the Wind, by hurrying the Waters up and down, and ſo promoting their lighting into the before-mention'd Fiſſures, was very much ſubſervient.

LX. In order to the giving a ſatisfactory Account of this Propoſition, and of the draining the Waters of the Deluge off the Surface of the Earth, (which to ſome has ſeem'd almoſt as difficult to ſolve as their firſt Introduction;) It muſt firſt be granted, that the Air could receive and ſuſtain but very inconſiderable Quantities, in compariſon of the entire Maſs which lay upon the Earth; yet ſome it might, and would naturally do; which accordingly both the *Wind* here mention'd, and the *Sun* alſo took away, and turn'd into Vapour immediately after the ceaſing of the latter Rains. But as to all the reſt, there is no imaginable Place for their Reception, or whither their natural Gravity oblig'd them to retreat to, excepting the Bowels of the Earth; which muſt therefore be diſtinctly conſider'd in this Place. Now we may remember, from what has been formerly ſaid, that the Quantity of Solids, or earthy Parts in the upper Orb's primary Formation, was very much greater than that of Fluids, or watery Parts; and conſequently, that the inward Regions of the Earth being generally dry and porous, were capable of receiving mighty Quantities of Waters, without any ſwelling, without any Alteration of the external Figure, or viſible Bulk. And, indeed, if we allow, as we ought, any conſiderable Craſſitude to this upper Orb, its *interior* Regions might eaſily contain a greater Quantity of Waters than what was upon the Earth at the Deluge: So that all the Difficulty is now reduc'd to this, By what Pipes, Canals, or Paſſages, theſe Waters could be convey'd into the Bowels of the Earth? Which, in truth, can admit of no Diſpute; nothing ſure being to be conceiv'd more natural *Inlets* to theſe Waters, than thoſe very *perpendicular Fiſſures*, which were the *Outlets* to part of them before.

Lem. 81. cum Coroll. & Solut. 6. priùs.

As

As ſoon therefore as the Waters ceas'd to aſcend upwards through thoſe Breaches, they muſt, to be ſure, deſcend downwards by the ſame; and this Deſcent is more natural than the *prior* Aſcent could be eſteem'd to be; which was a force upon them, compelling them, againſt their Natures, to ariſe upwards, when this Retreat into the ſame Interſtices is no other than their own proper Gravity requir'd and inclin'd them to. The caſe here is in part like that of a *Sieve*, firſt, by force, preſs'd down into a Veſſel of Water, till it were fill'd therewith, and then ſuffer'd to emerge again; where, through the very ſame Holes at which the Waters aſcended into, they would afterward deſcend out of the *Sieve* again, and retreat into their own Element, as before. All that in particular deſerves here to be farther noted, is, the Intereſt of the Winds, or of the Agitations of the Waters, (*Goings and Returnings* in the *Hebrew* Phraſe) made mention of in this Propoſition. And theſe Commotions are, in truth, very uſeful, and very neceſſary Aſſiſtants to the draining of the Waters from off the Earth. For when the moſt part of the Fiſſures were in the Mountains, 'twould have been a difficult Thing to clear the Valleys and lower Grounds, had there been a perfect Calm and every Collection of Waters remain'd quietly in its own Place. But when the Waters were ſo violently agitated and hurried from one Place to another, they would thereby frequently light into the *Fiſſures*, and Breaches, and ſo deſcend as well as the reſt into the Heart of the Earth; very agreeably to the Aſſertion of this Propoſition. As to the Objection againſt this Method of draining away the Waters of the Flood, that theſe *Fiſſures* would be fill'd at the beginning of the Deluge, and perhaps in ſome Places drain away ſome of its Waters

immediately, and ſo hinder the Increaſe of the Flood for 150 Days, which yet the Sacred Hiſtory mentions, I can ſee no force at all in it: For let the Cracks and Fiſſures be full during the Deluge, nay, let the Waters be in ſome meaſure draining away continually by ſome of them into the Bowels of the Earth; yet till this Drain *took away* more than the Rains, and the running in of the Water, and perhaps other Fiſſures *brought*, the Flood would continually increaſe, notwithſtanding. And certainly the Pores, Vacancies and Interſtices of 100 or 200 Miles of Dry Earth, *i. e.* Earth that can ſtill admit vaſt Quantities of Water (which the Thickneſs of the upper Cruſt may well amount to) are capable of receiving 5 or 6 Miles of Water into them; eſpecially if we obſerve that its inward *Strata*, are not, as ſome imagine, almoſt wholly compos'd of tough Clay, common Stone, Whin Stone, Coal, Metalline Ores, and the like; but are very much made up of Turf, Sand, dry Earth, Gravel and ſuch like, which will all receive great Quantities of Water, without any conſiderable Increaſe of their viſible Bulk: For the Truth of which, I appeal to the following Table of the ſeveral *Strata* of a Well at *Amſterdam*, mention'd by no worſe an Author than *Varenius*, which is the beſt and deepeſt that is readily to be met with.

Geogr. p. 46.

Feet

	Feet
Garden Mould	7
Turf	9
Soft Clay	9
Sand	8
Earth	4
Clay	10
Earth	4
Sand in which the Piles for the Amsterdam *Buildings are fix'd.*	10
Clay	2
White Gravel	4
Dry Earth	5
Mud	1
Sand	14
Sandy Clay	3
Sand mix'd with Clay	5
Sand mix'd with Sea-shells	4
A Clayey Bottom	102
Gravel	31
In all	232

Corollary. 1. *Seeing the most of the Fissures were in the Mountains, and those at the first most open, and the Pressure of the incumbent Waters then greatest, the decrease and going off of the Waters would be greatest at first, while the generality of the Mountains were under Water; and less and gentler afterwards.*

Coroll. 2. *Several low Countries now bordering on the Seas, might, for many Years after the Deluge, be under Water, altho' by the Descent of more of the Waters into the Bowels of the Earth, they might become Dry-land afterward; and by their Smoothness*

and Equability, ſhew their once having lain under, and been made ſo plain by the Waters. Inſtances of which are now very obſervable in the World: In particular, thoſe Parts of Cambridgeſhire *and* Lincolnſhire *which border on the* German *Ocean, appear very evidently to have originally been in the ſame caſe, as any careful Obſerver will eaſily pronounce; and the ſame is more remarkably true of* Holland, *and other Parts of the* Low-Countries.

Schol. 'Tis perhaps worth our Enquiry, whether moſt Mens Notions of the Time for the abating of the Waters of the Deluge be not very precarious at leaſt, if not wholly miſtaken. 'Tis the general Opinion, taken from the *Moſaick* Hiſtory of the Flood, that the Waters were wholly ſubſided, and the Earth laid as dry in a manner as 'tis at preſent, by that time *Noah* came out of the Ark; or in the Space of about a Year from the beginning of the Flood. 'Tis true, *Moſes* ſays, that on the
Gen. viii. 3, 4. *ſeventeenth Day of the ſeventh Month the Waters were abated, and the Ark reſted on the Mountains of*
ver. 5. *Ararat:* That on the *firſt Day of the Tenth Month the Tops of the Mountains were ſeen:* That on the
ver. 13. *firſt Day of the next Year the Waters were dried up from off the Earth.* And then laſtly, That on
ver. 14. &c. the *twenty ſeventh Day of the ſecond Month was the Earth dried,* and *Noah* call'd out of the Ark. But all this may be very true, and yet vaſt Quantities of the Waters of the Deluge might at the ſame time remain on the face of the Earth. And as the preſent Ocean may be ſtill a part of the ſame, ſo the reſt of them might require a hundred or two hundred Years before they arriv'd at or near to their preſent Subſidence and Condition. And this, I think, is the truth of the Caſe; and is ſo far from contradicting the Sacred Hiſtory, that it may be eſtabliſh'd by an Obſervation or two from

from thence, as well as by the preſent *Phænomena* of Nature. As to the Sacred Hiſtory of *Moſes*, 'tis firſt evident, that the Mountainous Regions about *Ararat*, or the *Gordyean* Mountains, eſpecially ſince they were, from my *Hypotheſis*, particularly elevated above the reſt, might be wholly clear of the Waters in a Year's time; and yet the lower Plains and Valleys in a very different Caſe, and ſtill to a great Depth under the Water: And 'tis as evident, 2dly, That we have no authentick Account of the lower Plains being become dry and habitable, even in Regions more elevated than many others, I mean about the middle Parts of our Continent, till the building of *Babel*, the Confuſion of Languages, and the Diſperſion of the Nations over the Earth; none of which happen'd, even according to the *Hebrew* Chronology, before the Second Century from the Deluge, in the Days of *Peleg*. And then as to the preſent *Phænomena* of Nature, I think they determine the Queſtion before us, and ſufficiently demonſtrate the longer abode of the Waters of the Deluge upon the Earth than is commonly allow'd: For as many Maritime Countries (which I have already obſerved, and others have noted the ſame) do, by their remarkably even and ſmooth Surface, ſhew they have been made ſo in length of time, by the Motion of the Sea, which now lays the Sands in the ſame manner; ſo does the Conſideration of the Nature and Poſition of the *Strata* of the Earth in ſome Places now fully confirm the ſame Obſervation. Near my former Habitation, at *Loweſtoft* in *Suffolk*, upon the Sea-coaſt, there is a pretty high and remarkable Cliff, at the leaſt twenty Foot above the Surface of the Ocean adjoining; and yet 'tis to the very top *Stratum* of all almoſt as evidently the Product of the Waters, laying Heaps, *Strata*,

Gen. x. 2. & xi. 1, 2.

Corol. 2. ſuprà. Mr. *Ray*'s Phyſico-Theolog. Diſcourſes, p. 28. 29. 2d Ed.

and Beds of *Sand* and *Chingle*; as that very Shore on which we ſtand, and which is daily made and removed by the Tides and Waves of the preſent Ocean. And as I do not doubt from the always equal Height of the Ocean every where, that 'tis frequently thus in other Places alſo; ſo this is, I think, a plain Evidence that the Ocean has been at leaſt 20 Foot higher than 'tis now; and that for a long time together; ſufficient I mean to heap up ſuch mighty Beds of Sand and Chingle as the preſent Obſervation does require. Which of it ſelf is at once a Demonſtration that all the lower Regions near the Sea have formerly been drown'd, and lain under Water; and at the ſame time does fully confirm that length of time which I aſſert was taken up in the entire Subſidence of the Waters of the Deluge.

LXI. The *Antediluvian* Year was in abſolute ſpace of time, nearly equal to our preſent and ancient Lunar one, or above 10 Days ſhorter than our preſent Solar Year.

LXI. This has been accounted for under the XI. *Hypotheſis*, with the LI. and LIX. *Lemmata* already.

LXII. Yet the *Antediluvians* had full 360 Days in their Year.

LXII. This has alſo been accounted for under the ſame XI. *Hypotheſis* and *Lemmata* already.

LXIII. The dry Land, or habitable Part of the Globe, is, ſince the Deluge, divided into two vaſt *Continents*, almoſt oppoſite to one another; which, as is moſt probable, are ſeparated by a great Ocean interpos'd between them.

LXIII. The Figure in which the Comet left the Earth, and which it would in ſome meaſure retain

retain ever after, was, as may be ſeen in our Scheme, an Oval or *Oblong Spheroid*; whoſe longer Axis a b would determine the higheſt extant Parts of the Earth; and whoſe ſhorter Axis c d by a Revolution about the Center perpendicularly to the longer Axis, would alike determine the loweſt or moſt depreſs'd Parts thereof. When therefore ſo much Water was run down into the Earth as the Apertures could receive; all that remain'd (excepting the ancient leſſer Seas ſomewhat augmented every where) muſt be found in the loweſt Vallies, or near the ſhorter *Axis*'s Revolution, all round the Globe, compoſing a mighty Ocean; while the two elevated Regions near the two Ends of the longer *Axis*, were extant above the Waters, and compos'd thoſe two oppoſite Continents of the Earth, made mention of in this Propoſition.

Corollary 1. *'Tis probable that* America *is entirely ſeparated from our Continent by the interpos'd Ocean, without any Neck of Land, by which it has been by many imagin'd to communicate with* Tartary.

Coroll. 2. *Poſſibly ſome of the* American *Continent were preſerved from the Deluge, as well as we know ſome were preſerv'd in this Continent; tho' we have no Records left among them to give us notice thereof. 'Tis evident that the* whole Earth *in* Moſes *is no more than the then known Parts of the Earth or World; and 'tis evident that Men knew nothing then of the* American *World: So that the Silence of the Sacred Hiſtorian relating to that World is of no Validity as to this Matter. And ſince the other Arguments ſeem to imply it was not peopled from this Continent, I think 'tis the moſt probable that ſome were ſaved* there *from the Deluge as well as* here.

LXIV. One of these *Continents* is considerably larger than the other.

LXIV. Since in all the Tides, and so in those Protuberances which occasion'd the present Continents, that which respects the Body producing the same, is larger than its opposite one; 'tis evident, so it ought to be here, and the Continent situate about the Point b, considerably larger than the opposite one about a, agreeably to this Proposition.

Corollary. *In this Posture of the Abyss, and its incumbent Orb, the Earth is correspondent to the Egg, its ancient Symbol and Representative, not only in its inward and entire Constitution, but in some measure in its external Figure also; the resemblance between them becoming by this means in a manner Universal.*

LXV. This *Continent* lies most part on the *North-Side* of the Equator; and the smaller, as far as is yet certainly known, most part on the *South*.

LXV. The Position of the Continents depended mainly on the time of the Year when the Comet passed by. For since the Comet descended in the Plain of the Ecliptick from the Regions almost opposite to the Sun, and came to its nearest distance about 130 degrees onward from the Point in the Ecliptick opposite to the Sun, before which, and yet scarce till after the Comet were past 90 Degrees, or the Periphery of the Ecliptick, would the Tides be great enough to burst the Orb of Earth, and fix the Centers of the Continents; by considering the place of the Earth in the Ecliptick, and counting about 100 Degrees onward, one may determine the Latitude of the Point on the Earth directly expos'd to the Comet's Body, and by consequence of its opposite Point also; about which Points the two Con-

Continents lay. Now the Earth being about the middle of *Taurus* to an Eye at the Sun (which I always in ſuch Caſes ſuppoſe) at the time of the paſſing by of the Comet, about the middle of the ſecond Month from the Autumnal Equinox ; the latter part of *Leo* (being 100 Degrees onward from the Point oppoſite to the *Sun*) will nearly determine the Latitude of the larger Continent d b c, as by conſequence will the latter part of *Aquariùs* that of the ſmaller d a c: On which accounts 'tis evident, that the larger muſt be moſtly on the *North*, and the ſmaller moſtly on the *South* Side of the Equator.

LXVI. The Middle or Center of the *North-Continent*, between the utmoſt bounds, *North* and *South*, *Eaſt* and *Weſt*, is about ſixteen or eighteen Degrees of *Northern* Latitude ; and that of the *South* about ſixteen or eighteen Degrees of *Southern* Latitude.

LXVI. This Propoſition (which more nicely determines that Poſition of the Continents which the laſt more generally aſſerted) is thus demonſtrated. Each Continent muſt retain that Poſition which it had when its *Compages* was burſt by the Elevation of the Abyſs. Now the burſting of the Orb is to be ſuppos'd before the Comet's neareſt diſtance ; and by conſequence the Centers of the two Continents a and b ought to have the Latitude of the Points about 90, or rather nearer an 100 Degrees onward beyond that oppoſite to the *Sun*, or beyond the *Sun* it felt. So that the Center of the *Northern* Continent, near the *South-Eaſt* Point of *Arabia* ; and of the *Southern*, near the Source of the vaſt River *De la Plata*, ought to be about the ſame Latitude with the 20th Degree of *Leo*, and of *Aquarius*, or near 16 Degrees, the former of *Northern*, the latter of *Southern* Latitude, as this Propoſition aſſerts them really to be.

Corol-

Corollary 1. *If therefore we were to determine the time of the Year of the Comet's passing by the Earth, or the commencing of the Deluge from the Position of the Centers of our two opposite Continents, which depend thereon; we ought to assign it near the middle of the second Month, from the Autumnal Equinox; agreeably to the time already fixt both from the Sacred History, and the Calculations of* Astromomy *at the Eleventh* Hypothesis *foregoing.*

Coroll. 2. *Hence all those* Corollaries *to the third and fourth Argument of the said Eleventh* Hypothesis *are mightily confirm'd: To which I refer the* Reader *for their second Perusal; the Importance of their Subjects well-deserving the same at his Hands.*

LXVII. The Distance between the *Continents*, measuring from the larger or *Northern*, *South-Eastward*, is greater than that the contrary way, or *South-Westward.*

LXVII. Seeing the Motion of the Comet about its neareſt Position was much more considerable than the Diurnal one of the Earth; and seeing withal the greater and higher Protuberance would arrive at a sufficient force to burst its incumbent Orb or Continent somewhat sooner than the lesser and lower; it will follow that the Point b would not be just opposite to the Point a, but nearer the place q in the Figure. By which means the distance from q by c to a would be greater than from the same q by d to a; or from the Center of the great Continent to that of the lesser *South-Eastward*, than *South-Westward*: Exactly as this Proposition requires.

Fig. 7.

LXVIII. Neither of the *Continents* is terminated by a round or even circular Circumference: But mighty Creeks, Bays, and Seas running into them; and as mighty Peninsula's, Promontories, and Rocks jetting out from them, render the whole very unequal and irregular.

LXVIII.

LXVIII. If the Surface of the Earth before the Deluge had been even and ſmooth, without Mountains and Vallies; and their Conſequents, Seas and dry Land, the paſſing by of the Comet muſt indeed, as before, have certainly caus'd a diſtinction of the two Continents, and muſt have interpos'd an Ocean between them; but then theſe two Circumſtances would have obtain'd alſo, firſt, that all the Waters of the entire Globe would have left the Continents, and ſolely compos'd an Ocean; and ſecondly, That the Termination or Boundaries of the Ocean and the Continents would have been circular, round, and even on every Side. But ſince the Surface of the Earth was uneven, irregular, and diſtinguiſh'd every where into Mountains, Plains and Vallies, into Seas and dry Land, the preſent Terraqueous Globe, with thoſe Inequalities of the Termination of each Continent mention'd in this Propoſition, is a moſt eaſy and natural, nay a plainly neceſſary reſult of this great Mutation at the Deluge.

Corollary 1. *Hence 'tis farther evident, that the Surface of the Antediluvian Earth was not plain and even, but had thoſe diſtinctions of Mountains and Vallies, Seas and dry Land, which from other Arguments had been before eſtabliſh'd.*

Coroll. 2. *Hence therefore it appears (what ſhould have been before obſerved) that all the Earth might be planted and peopled before the Deluge, even tho' the Navigation were then either not at all, or not conſiderably known: There being no Ocean or ſeparate Continents; and ſcarce any ſuch thing as an Iſland or Country but what with eaſe might be gone to by Land.*

LXIX.

LXIX. The depth of that Ocean which ſeparates theſe two *Continents* is uſually greateſt fartheſt from, and leaſt neareſt to either of the ſame *Continents*; there being a gradual deſcent from the *Continents* to the middle of the Ocean; which is the deepeſt of all.

LXIX. The reaſon of the gradual Declivity towards the middle of the Ocean, is very plain from the Figure hereto belonging. For ſince the Earth's Surface became in ſome degree an Oval, or oblong Spheroid, 'tis neceſſary that there ſhould be (as far as the other Irregularities of the Globe would permit) a deſcent from the ends of the longer *Axis* b and a, to thoſe of the ſhorter c and d in their entire Circumvolution; which gives a moſt obvious account of the preſent Phænomenon.

LXX. The greateſt part of the Iſlands of the Globe are ſituate at ſmall diſtances from the Edges of the great Continents; very few appearing near the middle of the main Ocean.

LXX. Since Iſlands are only ſuch high Regions as would be extant above the Surface of the Waters, tho' they cover'd the Neighbouring Parts; and ſince the Ocean, as we have now ſhewn, was deepeſt in the middle between the two Continents; 'tis plain that, *Cæteris paribus*, the higher Regions would more frequently be extant near the Continents, than about the middle of the ſaid Ocean; as this Propoſition aſſerts.

LXXI. The Ages of Men decreas'd about one half preſently after the Deluge; and in the ſucceeding 1300 Years were gradually reduced to that Standard at which they have ſtood ever ſince.

Solution 44. priùs.

LXXI. The firſt part of this is already ſufficiently accounted for in that Propoſition, where the cauſes of the change in the duration of Men's Lives at the Flood were in general enquir'd into. But the reaſons of the gradual Decay in the ſucceeding Ages are here to be aſſign'd. Now here

'tis

'tis not impoſſible that the conſiderably long lives of the firſt Poſtdiluvian Patriarchs might in part depend on the vigorous Conſtitution of their Fathers, not to be immediately impair'd to the utmoſt, or deſtroy'd in their Poſterity, till by degrees, and in length of time it was effected. But beſides, 'tis to be conſider'd, which I take to be the principal thing, that ſeeing the corrupted Atmoſphere, with the pernicious Steams ariſing from the newly acquir'd Chaotick Cruſt, or Sediment of the Waters, and their unhappy Effects on the Fruits, as well as living Creatures upon the Earth, muſt be allow'd the occaſion and cauſe of the ſhortning of human Life; ſuch Regions as were freeſt from, or moſt elevated above the ſaid Sediment, or Chaotick Atmoſphere, muſt have chiefly continu'd as they were before, and ſo the ancient Longevity would chiefly be preſerv'd therein. Which being ſuppos'd, and what has been already advanc'd withal conſider'd, this Propoſition will be eaſy, plain, and natural; and a peculiar atteſtation to the preſent Hypotheſis. For ſeeing *Noah* and the Ark were landed on the moſt elevated Region of the Earth, and freeſt from the Sediment of the Waters, as well as the Groſsneſs of the Chaotick Atmoſphere below, that Place would ſcarce differ for a good while from the Antediluvian State of things, and the Lives of Animals would retain very near their ancient Duration; which accordingly we find was really done. *Noah* ſurvived the Deluge no leſs than 350 Years, and compleated 950 in the whole (ſomewhat beyond the moderate Proportion of the Antediluvians themſelves; as the Table belonging to this Phænomenon will eaſily ſhew.) But then by reaſon both of the deſcent of his Poſterity into the Plains, and lower Grounds, Gen. xi. 2.

Grounds, and principally by the gradual ſubſidence of thoſe Regions themſelves into the groſs Atmoſphere below, they became gradually liable to thoſe Diſeaſes, and that ſhortneſs of Life, which we before ſhew'd to have been the ſad Effects thereof, and to which all Mankind has ſince been ſubject.

Graunt. p. 59, 85, 86.

Corollary 1. *Mankind increaſed vaſtly more ſoon after the Deluge than in theſe latter Ages of the World. For where as a Country is near* 400 *Years now in doubling its Inhabitants, had the ſame rate held ever ſince the Deluge, Mankind at this Day would not have reach'd the number of many thouſand Souls; which yet is eſteem'd to be many hundred, if not ſome thouſand Millions. So that 'tis evident, That the Antediluvian Fruitfulneſs, and numerous Stock of Inhabitants, (which are alſo themſelves hereby fully eſtabliſh'd,) muſt have prevail'd,* ſervata proportione, *among the primitive Poſtdiluvians for ſome Centuries, or elſe no Account were to be given of the preſent numbers of Men upon the Face of the Earth; whereby the Verity of this Propoſition, the Veracity of* Moſes *therein, aud the great Importance thereof, are mightily confirm'd.*

Coroll. 2. *Hence by the Table of the decreaſe of Men's Lives after the Deluge before-mention'd, we may nearly determine the Ages of Men for the firſt* 1300 *Years after the Deluge, from the length of their Lives given. Thus* Job, *who appears to have liv'd at the leaſt about* 180 *Years, muſt have been contemporary with ſome of the Patriarchs between* Serug *and* Jacob *to whom that Duration of human Life belong'd; and thus we may examine and very probably determine the Ages of the moſt Ancient Kings mention'd in prophane Hiſtories, from the like Duration of their Lives or Reigns.*

Job xlii. 16.

Coroll.

Coroll. 3. *Hence the* Chineſe *Antiquities appear worthy of regard, becauſe the length of their firſt Kings* Reigns *imply them to be very ancient, and to begin, if not before, yet at, or ſoon after the Deluge, as we have elſewhere obſerv'd. And if the* Egyptian *and* Aſſyrian *Dynaſties did more plainly agree with this ancient* Longevity, *they would be more unexceptionable than now they are.* Chron. Old Teſt. p. 64, 65.

Coroll. 4. *The* Antediluvian *and* Poſtdiluvian *Years mention'd in Scripture were true Years of Twelve, not fictitious ones of one Month apiece; as ſome, that they might reduce the Age of the firſt Patriarchs to the ſhort term of Life ſince uſually attain'd to, have been willing to ſurmiſe. This Fancy is ſtrangely abſurd, and contrary to the Sacred Hiſtory, and in particular irreconcilable with this Propoſition. For had the Ancient Years been* Lunar, *of one Month, and the latter* Solar *of twelve, by which the ſame Duration of Human Life had been differently meaſur'd; the number of Years which Men liv'd, muſt have alter'd in the Proportion of twelve to one of a ſudden, at ſuch a change in the Year referr'd to, and not gradually and gently, as 'tis here evident they did.*

LXXII. Our upper Earth, for a conſiderable depth, even as far as we commonly penetrate into it, is *Factitious*, or newly acquir'd at the Deluge: The ancient one having been cover'd by freſh *Strata* or *Layers* of Earth at that time, and thereby ſpoil'd or deſtroy'd as to the uſe and advantage of Mankind.

LXXII. 'Tis not to be ſuppos'd, that the Waters of the Deluge were merely the pure Element of Water, ſincere and unmixed. What came from the Comet's Atmoſphere, muſt partake of its earthy heterogeneous Mixtures; and what was ſqueez'd up from beneath, muſt carry

up much Dirt and Earthy Matter along with it. Beſides which, as ſoon as the ſtormy Weather began, and as the vaſt Tide of Waters went along from *Eaſt* to *Weſt*, the ſoak'd and looſen'd Tops of Mountains would eaſily, by the Winds and Waves together, be waſh'd off, or carried away into the Maſs of Waters, and increaſe the impurity and earthy Mixtures thereof. On all which Accounts, the Waters of the Deluge would be a very impure, thick, and muddy Fluid, and afford ſuch a quantity of earthy Matter as would bear ſome ſmall Proportion to that of even the Water it ſelf. Now this earthy Matter being heavier than the Water, would by degrees ſettle downwards, and compoſe firſt a mighty thick, dirty, muddy Fluid in the lower Regions of the Waters, and at laſt a plain earthy Sediment at the bottom of them; which would at once ſpoil and bury the old Surface of the Ground, and become a new Cruſt or Cover on the face thereof. Now, that we may ſee whether this Sediment or Cruſt could be ſo thick and conſiderable as this Phænomenon requires, let us ſuppoſe, as before, the perpendicular height of the Waters of the Deluge to have been ſome 6 Miles above the common Surface of the Plains and Seas, and the 60th part only of the entire Fluid on the Face of the Earth to have been earthy parts fit to compoſe the Sediment or Cruſt before mention'd. Let us alſo remember what has been already obſerv'd from Sir *Iſaac Newton*, That Earth is nearly Five times as denſe and heavy as Water: So that the 60th Part in the Quantity of Matter, would only take up the 300th Part of the whole Space, either in the Waters, or when 'twas ſettled down by it ſelf, and became a New Cruſt or Orb upon the

Hypoth. 2. prius.

Earth.

Earth. If we then divide 31,680 the number of Feet in 5 Miles, the whole height of the Waters, (not here to allow for the inconſiderable ſpaces poſſeſſed by the extant Parts of the Earth) by 300, the Quotient will ſhew the Craſſitude or Thickneſs of this Sediment or Cruſt covering the Face of the Earth, *viz.* about 105 Feet, one place taken with another indifferently. Which Quantity fully accounts for the Propoſition we are upon, and agrees with the Obſervations made in the Bowels of our preſent Earth, to as great accuracy as one could deſire or expect.

Corollary 1. *Hence it appears, That the Earth was generally uninhabitable for ſeveral Years after the Flood: This new factitious Sediment of the Waters requiring no little ſpace of time e're it would be fully ſettled, its* Strata *conſolidated, its Surface become hard and dry, and its Vegetables ſprung out of it; before which time it muſt have been uninhabitable by Man, and the other dry Land Animals.*

Coroll. 2. *Hence we may ſee the Care and Wiſdom of Divine Providence for the Preſervation and Maintenance of* Noah, *and of all the Creatures in the Ark, after their coming out of the ſame again; by ordering all things ſo, that the Ark ſhould reſt on the higheſt Mountain in the World, and that the Waters ſhould ſo little ſurpaſs the ſame, that the Sediment thereof could neither ſpoil the Fruits of the Ground, nor render the Surface uninhabitable, as it did on the other Regions of the Earth. For ſince the quantity of the Sediment would generally be proportionable every where to the perpendicular height of the Waters over the Surface of the Ground below; tho' it would cover all the other Regions of the whole Earth, yet*

on this higheſt of all the Mountains, (cover'd but a few Days, or perhaps Hours, with any Waters, and they never above fifteen Cubits perpendicular height) the quantity of the Sediment would here be perfectly inconſiderable, and the Earth would not be at all alter'd from what it was before, nor its Vegetables hurt by this univerſal Deluge. So that this, and this only was the Spot of Ground capable of receiving the Ark, and of ſuſtaining the Creatures therein; till afterwards the reſt of the Earth became fit for their Deſcent and Habitation. To this Spot therefore, by ſuch a wonderful Adjuſtment of all the requiſite Circumſtances of the Deluge, preſerv'd and diſtinguiſhed from all the reſt of the World, the Divine Providence did conduct the Ark; and on this was laid the Foundation of the preſent Race of Mankind, and of all thoſe Terreſtrial Animals which are now on the Face of the whole Earth; which otherwiſe had periſh'd at their Exit out of the Ark, notwithſtanding their wonderful Preſervation therein during the Rage of the Deluge.

Coroll. 3. *Hence appears a certain way of determining whether this Account of the preſent upper Earth, as derived from the bare Sediment of the Waters of the Deluge, be true or not. For 'tis but ſinking a Well on the Top of the higheſt* Gordyean *Mountain; and if the* Strata *appear to be thin and many with Garden Mould, and Sea-Shells,* &c. *at a great depth as 'tis in other Places, This Account muſt be falſe; but if there appear large* Strata *and few, without any Garden Mould, Sea-Shells or the like, This Account will appear true, and fully atteſted by ſo remarkable a* Phænomenon.

Gen. viii. 11.

Coroll. 4. *Hence we may eaſily underſtand whence the* Olive-branch *was brought by the Dove to* Noah.

For

For ſince the Trees adjoining to the Ark, or on the neighbouring Tops of the Hills had ſuffer'd ſmall damage by the Flood, and had ſince the clearing of the Waters enjoy'd almoſt the whole Spring and half the Summer; they muſt be as flouriſhing, and full of as many new and tender Sprouts as ever; one of which might therefore be eaſily broken off by the Dove, *and brought to* Noah *in her Mouth; which new, dry and firm Sprout or Branch, being a clear evidence, that the Waters were not only gone, and the Neighbouring Ground dry a great while before, but that the Earth was ſtill as formerly, fit for the Production of its wonted Trees and Fruits, muſt exceedingly tend to the Satisfaction of* Noah, *and the Confirmation of his Faith and Hope in an entire Deliverance, and in the future Renovation of the World.*

LXXIII. This Factitious Cruſt is univerſal upon the Tops of the generality of Mountains, as well as in Plains and Vallies; and that in all the known Climates and Regions of the World.

LXXIII. This is neceſſarily conſequent from the Univerſality of the Deluge already accounted for. And tho the generality of the Mountains would uſually have a thinner Sediment or Cruſt than the Plains or Vallies, in Proportion to the leſſer height of the Waters over each of them reſpectively; yet they being at the Deluge much *inferior* to the height of the *Gordyean* Mountains, muſt be generally cover'd with the ſame Cruſt, (unleſs the Storms and Waves waſh'd it down again after its firſt ſettling upon any of them,) as the Obſervations ſhew they really now are.

Coroll 1. *'Tis hence evident, even abſtractedly from the Sacred Hiſtory, that there has formerly been an Univerſal Deluge, much higher than the ge-*

nerality of the Mountains. So that hereafter, since the so useful Observations of Naturalists, and principally of Dr. Woodward *hereto relating, we scarcely need to endeavour to secure the Credit and Veracity of the* Mosaick *History of the Deluge by the ancient Records, and the universal Attestation of Antiquity; (which Testimonies yet are too evident and numerous to be denied;) but may from our own Eyes, at the neighbouring Mines and Coal-Pits, satisfy our selves of the exact Truth of this part of the Sacred Volume, which has been so much excepted against by ill disposed Persons. So wonderful is the Method of the Divine Wisdom in its seasonable Attestations afforded to the Sacred Scriptures! That not only the* Very Day, *as we have seen, when the Flood began, assured by* Moses, *may still, after more than four thousand Years, be proved not only from* Plutarch's *express Testimony, but from Astronomy it self, to have been the true one; which the Learned are chiefly capable of judging of, and being primarily influenc'd by: But the Reality and Universality of the Deluge it self is demonstrable from such common and easy Observations, in all Parts of the World, at the Neighbouring Mines or Cole-Pits, that the Vulgar and most Illiterate may be Eye-witnesses of the certain Effects of it, and so fully convinced of the fidelity of the Sacred Historian therein.*

Vid. Dr. *Bentley's* Serm. 4. p. 34, 35.

Coroll. 2. *'Tis no wonder that so few or rather none of the Antediluvian Cities, Towns, Buildings, or other Remains are any where to be met with since the Deluge: They being all generally buried, perhaps above an hundred foot deep in the Earth, by the Sediment of the Waters.*

LXXIV. The Parts of the present upper *Strata* were, at the time of the Waters covering the Earth, loose, separate

ſeparate, and divided; and ſo floated in the Waters among one another uncertainly.

LXXIV. This Propoſition needs no farther Explication; being already plain from what has been already ſaid.

LXXV. All this Heterogeneous Maſs thus floating in the Waters, by degrees deſcended downwards, and ſubſided to the bottom, pretty nearly according to the Law of Specifick Gravity; and there compos'd thoſe ſeveral *Strata* or *Layers*, of which our preſent upper Earth does conſiſt.

LXXV. This Propoſition is as eaſy as the former; and included in what has been already ſaid.

LXXVI. Vaſt Multitude of Fiſhes, belonging both to the Seas and Rivers, periſh'd at the Deluge; and their Shells were buryed among the other Bodies or Maſſes which ſubſided down, and compos'd the *Layers* of our upper Earth.

LXXVI. Where ſo Heterogeneous a Maſs of Corpuſcles were diſperſed every where through the Waters; and towards the bottom, eſpecially at the latter end of their ſubſidence, render'd the ſame very thick and muddy; 'tis natural to ſuppoſe, that Multitudes of Fiſhes, partly ſtifled with the Spiſſitude and Groſsneſs of the Fluid; (ſcarce there deſerving that Name;) and partly poiſon'd with the kinds of ſome of thoſe Corpuſcles which they took in, together with their Nouriſhment therein, would be deſtroy'd and periſh in the Waters: Which being granted, the reſt ſo eaſily follows as not to need any farther Explication.

LXXVII. The ſame Law of Specifick Gravity which was obſerved in the reſt of the Maſs, was alſo ob-

ſerved in the ſubſidence of the Shells of Fiſhes; they then in the main ſinking together with, and accordingly being now found incloſed among thoſe *Strata* or Bodies which are nearly of their own ſeveral Specifick Gravities: The heavier Shells being conſequently ſtill incloſed among the heavier *Strata*, and the lighter Shells among the lighter *Strata*, in the Bowels of our preſent Earth.

LXXVII. This Phænomenon is ſo natural and neceſſary, conſidering the gradual Increaſe of the thickneſs of the groſs Sediment downward, and the equal Subjection of Shells to the Law of Specifick Gravity with all other Bodies, that I ſhall not inſiſt any farther upon it.

Corollary. *This ſingle* Phænomenon *of the Shells of Fiſh incloſed in the moſt ſolid Bodies, as Stone and Marble, and that all over the World, according to their ſeveral Specifick Gravities, at great depths within the Bowels of the Earth; which is ſo ſtrange in it ſelf, ſo ſurprizing to the Spectators, and ſo unaccountable without the moſt unuſual and Precarious Miracles be introduced, on any other Principles; and yet ſo eaſily and naturally ſolved in the* Hypotheſis *before us; is a ſtrong, I had almoſt ſaid an invincible Argument for the verity thereof; and as undeniable almoſt as a Phyſical Aſſertion is capable of: That is, 'Tis, (as far as we can in reaſon pronounce,) without a Miracle,* certainly true.

LXXVIII. The *Strata* of *Marble*, or *Stone*, and of all other ſolid Bodies, attained their ſolidity, as ſoon as the *Sand*, or other Matter whereof they conſiſt, was arrived at the bottom, and well ſettled there. And all thoſe *Strata* which are ſolid at this Day, have been ſo ever ſince that time.

LXXVIII. Seeing this upper Cruſt or Sediment was compos'd in great part of the Earthy Corpuſcles or Maſſes of a Chaos, as well as the Primitive

tive Earth was at the *Moſaick* Creation: The very ſame Reaſons aſſignable for the Coaleſcence and Conſolidation of the former, are equally to be ſuppos'd in the preſent Caſe, and render it equally reaſonable with the other. And if the Denſe Fluid, or any Parts or Steams from that, were inſtrumental to the Original Union of Parts at the primary Formation of the Earth, 'tis probable there was no want of it at the Deluge; the *Atmoſphere* of the Comet, and the Fountains of the Deep, being both capable of ſupplying ſufficient Quantities, among the larger Plenty of their watery and earthy Maſſes; as is plain from what has been already ſaid. Neither in caſe ſome of it were acquir'd by the means aforemention'd, is it to be expected that we ought to ſee It ſtill on the Face of the Earth. as we do the Ocean: For ſeeing this *Denſe Fluid* is much heavier than Water or Earth, it would be at the very bottom of all, and ſo either be enclos'd in the Pores and Caverns at the bottom of the Sediment, or transform'd into a different Body by its Compoſition with the earthy Parts it was enclos'd withal, and which did conſolidate together.

LXXIX. Theſe *Strata* of *Stone*, of *Chalk*, of *Cole*, of *Earth*, or whatever Matter they conſiſted of, lying thus each upon other, appear now as if they had at firſt been parallel, continued, and not interrupted: But as if, after ſome time, they had been diſlocated and broken on all ſides of the Globe, had been elevated in ſome, and depreſſed in other Places; from whence the Fiſſures and Breaches, the Caverns and *Grotto's*, with many other Irregularities within and upon our preſent Earth, ſeem to be deriv'd.

LXXIX. When the Sediment ſettled down gradually upon the Surface of the ancient Earth, it would compoſe *Strata* or *Layers* as even, continued, and parallel, as one could deſire, and as the ſaid Surface did permit. And had the ſaid Surface

Surface been fix'd and unalterable, this Evenneſs and Paralleliſm, this Uniformity and Continuity of the *Strata* would have remain'd unalterable alſo to this Day. But ſince, as we have formerly ſhewn, the entire Orb of Earth was at the beginning of the Deluge crack'd, chap'd, and broken; and for many Years afterwards would, by degrees, ſettle and compoſe it ſelf towards its former Figure and Rotundity again; tho' the *Series* and Connexion of the *Strata* might, before they were conſolidated, be as regular as you can imagine, yet when the *Baſis* or Foundation on which they reſted, and the Surface on which they were ſpread fail'd by degrees, in ſeveral Places, and Proportions, by the riſing of ſome Columns upwards, and the ſettling of others downwards, this upper Orb or Cruſt, where the *Strata* were not become entirely ſolid like Stone and Marble, muſt follow, in great part the Fate of the other, and be diſlocated, elevated, or depreſs'd in Correſpondence to that whereon it reſted; and have thereby a Set of Caves and *Fiſſures* directly over-againſt thoſe which were before in the ancient Earth. But as for ſuch Places where the new *Strata* were become ſtony or ſolid, and incapable of a Compliance with the under Earth, by the ſettling downward or Elevation of its immediate *Baſis* the Primitive Earth, thoſe *Caverns* and *Grotto*'s, thoſe *Caves* and *Hollows* which appear within the Earth, or its Mountains, would naturally ariſe; while the ſolid *Strata*, like Beams or Arches, ſuſtain'd the impending Columns, notwithſtanding the ſinking and failure of their immediate Foundations; by which Cauſes the Surface and Upper Regions of the Earth would become very uneven, and full of ſmall Irregularities, ſuch as the preſent *Phænomena* aſſures us of.

Corollary

Corollary 1. *Hence we see a plain Reason why Mountainous and Stony Countries are only or principally Hollow and Cavernous: Some lesser Mountains living perhaps occasioned by the Subsidence of the neighbouring Columns, and the Caverns they enclose thereby produced; and the Solidity of the* Strata *being the proper Cause of such Caverns in other Cases: Of which the softer, more loose, and pliable Earth was accordingly incapable.*

Corollary 2. *Tho' the Ancient Earth were settled, and become uneven in the same degree, and in the same Places as the present is; and that before the consolidation of the new Sediment; yet the* Series *of the several* Strata *one under another on each Side of any* Fissure, *would in some Measure correspond to one another, as if the consimilar* Strata *had once been united, and had afterwards been broken and sunk down unequally; as is manifest from the consimilar Situation and Subsidence of the consimilar Corpuscles; whereby the like Order and Crassitude of each* Stratum *might be still preserv'd, tho not so exactly, as if the sustaining Surface had been even and smooth when the Sediment compos'd those* Strata, *and the Fissures had afterward been made through both Orbs at once, and caus'd such Inequality.*

Coroll. 3. *Hence would arise mighty and numerous Receptacles of Water within the Earth, especially in the Mountainous Parts thereof. For usually where a solid* Stratum *sustain'd the Earth above, while the parts beneath sunk lower, and thereby produc'd a Cavern, the Waters would ooze and flow into it from all Quarters, and cause a conflux or inclosed Sea of Waters in the Bowels of the Earth: Which Cavities might sometimes communicate with one another, or with the Ocean; and sometimes contain Restagnant Waters, without any Outlet: All which are very agreeable to the present Phænomena of the Earth.*

Co-

Coroll. 4. *Hence appears the Reaſon of the raging of Earthquakes in Mountainous Countreys, and of the burſting forth and Continuation of* Volcano's *there. For theſe Caverns, which we have obſerv'd the Mountainous Countries to be mainly liable to, are fit to receive and contain together Nitrous and Exploſive, Sulphureous and Inflammable Steams, in great Quantities; and withal to admit the Air to fan, and aſſiſt that Exploſion or Inflammation, which ſeems to be the occaſion of thoſe dreadful Phænomena in our preſent Earth.*

Coroll. 5. *If therefore there be no other Caverns than theſe accounted for juſt now, and taking date from the Deluge; 'tis very probable there were few or no* Volcano's; *or Earthquakes ſo much depending on them, before the Flood.*

Coroll. 6. *In caſe what has been, or might farther be ſaid, be not found ſufficient to account for ſome Obſervations made, concerning the inward Parts of our Earth; but Dr.* Woodward's Hypotheſis *of the Diſruption of the before-united* Strata, *by a general Earthquake, or the exploſive force of the Steams of Heat aſcending from the Central Parts, be found neceſſary; ſuch a ſuppoſition will by no means diſagree with the preſent Theory. For when the Subterraneous aſcending Steams were every way ſtopp'd, and their ordinary Courſe from the Central to the Superficiary Parts obſtructed, by the new Sediment or Cruſt growing faſt and ſettled, and in ſome Places Stony and Impenetrable; they would be every where preternaturally aſſembled, eſpecially in the Cracks, Breaches and Fiſſures of the Ancient Earth, in greater Quantities than uſual, and ſo might by a violent Rarefaction, or Exploſion, burſt through the Upper Cruſt, and cauſe all thoſe* Fiſſures, *little* Hills, Caverns, Groto's, *and* Inequalities *which Dr.* Woodward's *Obſervations require, and this Propoſition takes notice*

notice of. In this caſe therefore the particular and diſtinct Conſideration of the Phænomena, *muſt determine and arbitrate between the former more natural and gentle, and this latter more violent and extraordinary Method of accounting for the preſent face of Nature upon and within the Earth.*

LXXX. Great Numbers of Trees, and of other Vegetables, were alſo, at this Subſidence of the Maſs aforeſaid, buried in the Bowels of the Earth: And ſuch very often as will not grow in the Places where they are now lodged: Many of which are pretty entire and perfect, and to be diſtinctly ſeen and conſider'd to this very Day.

LXXX. Seeing the latter part of the Deluge, after the ſeventeenth Day of the ſeventh Month, which was either the twenty ſeventh Day of *March*, or the firſt Day of *April*, was very windy, ſtormy, and tempeſtuous; and ſeeing all along the Waters would have a mighty Current from *Eaſt* to *Weſt*, eſpecially towards the beginning of the Deluge, the moſt extant and mountainous Parts of the Earth would be mightily expos'd to the Fury both of the Winds and Waves; which conſequently would tear up, or waſh away the looſe and unſolid Upper Earth, with all its Furniture of Trees and Plants; and not ſeldom carry them great Diſtances from their former Seats. Now theſe Vegetables, if no *Earthy*, *Metallick*, or *Mineral* Maſſes adher'd to them, being Bulk for Bulk, lighter than the earthy Sediment, would ſettle down laſt of all, and would lye upon the Surface of the Earth, and there rot away and diſappear. But if conſiderable Quantities of the heavieſt *Strata*, or of the *Metallick* or *Mineral* Matter, as would ſometimes happen, adhered to them, they would ſink lower, and be inclos'd in the Bowels of the Earth. either near to, or far from

Solut. 58. priùs.

from the place of their own Growth, according as the Billows and Storms happen'd, to diſpoſe of them. All which Changes and Diſlocations of the Soil and Surface, with their Fruits and Plants, might leave once fertile Countries bare and barren; and lodge ſuch Vegetables in others, which of themſelves, before the new Sediment, much more ſince the ſame, were wholly incapable of ſuch Productions, according to the Exigency of the Propoſition before us.

LXXXI. It appears from all the Tokens and Circumſtances which are ſtill obſervable about them, That all theſe Vegetables were torn away from their ancient Seats in the Spring-time, in and about the Month of *May*. But then this muſt be reſtrain'd to the Vegetables found in theſe *Northern* Climates; for otherwiſe, 'tis always all Seaſons to one Place of the Earth or other. Otherwiſe we ſhould have loſt a great Part of the *Antediluvian* Plants, even all thoſe whoſe Seeds were not ripe at the time when they were born away into the Water.

Solut. 58. priùs.

LXXXI. Since we have already prov'd, that the windy and ſtormy Weather which tore up theſe Vegetables, did not begin till the ſeventeenth Day of the ſeventh Month from the Autumnal Equinox; and ſince it appears that the higher any Mountain or Continent was, the leſs while, and in a leſs degree would the Waters prevail upon it; and ſo little ſometimes, as not wholly to deſtroy the growing Vegetables, at this due time of the Year; 'tis evident, that whether the Sediment were newly ſettled, and had enclos'd them or not, ſo many as were torn up from theſe higheſt Parts of the Earth muſt be in that Forwardneſs as the Months ſucceeding the beginning of the Storms (*April*, *May* and *June*) uſually bring them to, very agreeably to the Propoſition

poſition before us. However, 'tis certain that the Waters deriv'd from the Comet's *Atmoſphere* it ſelf, which I look upon as the principal Cauſe of this Deluge, falling upon conſiderably more than half of the whole Surface of the Earth, and immediately moving with a great, but decreaſing Velocity *Weſtward*, would by degrees, arrive at the Place where the *Ark* was built, or at *China*; and as ſoon as the deepeſt Part of theſe Waters approach'd that Place, it would immediately bear it away, and carry it *Weſtward*; and this prodigious Current of Waters it was, in my Opinion, which mainly waſh'd away the Surface of the Earth, eſpecially from all Places at all elevated above the reſt; and this Current leaving *Aſia* and *Europe* in the Spring-time of the Year, as appears by its bringing the Ark by the end of *March* as far as *Armenia*, at this time its lower Parts would be got ſtill much more *Weſtward*. So that we ſee a plain Reaſon why the *European* Vegetables which were than growing on the Earth, and afterwards buried in the Sediment of the Deluge, ſhould all ſhew the Spring-time for the Date of ſuch their Eradication, it being but a juſt Conſequent of the Poſition of *Europe*; and of the Courſe and way of the main Current of the principal Waters of the Deluge.

Corollary. *Hence the Ancient Years beginning at the* Autumnal Equinox, *and the conſequent commencing of the Deluge the ſeventeenth Day of the ſecond Month from thence, and not from the Spring, is evidenc'd by this very Obſervation which Dr.* Woodward, *the Author thereof, ſuppoſes would prove the contrary. So that the time of the Deluge's commencing aſſign'd by our* Hypotheſis, *appears at laſt to be confirm'd both by the* Scriptures, *by the* Ancients, *by* Aſtronomy,

by

by Geography, *and by* Natural Obſervation; *and is conſequently by ſo very remarkable a Concurrence and Correſpondence of 'em all, put beyond any reaſonable Doubt or Scruple.*

LXXXII. All the *Metals* and *Minerals* among the *Strata* of our upper Earth, owe their preſent Frame and Order to the Deluge, being repos'd therein during the time of the Waters covering the Earth, or during the Subſidence of the before-mention'd Maſs.

LXXXII. This can have no difficulty in it, ſeeing our upper Earth is *factitious*, and compoſed of the foreſaid Sediment of the Waters of the Deluge; which including the Corpuſcles of *Metals* and *Minerals*, as well as others, would alike afford every one thoſe Places which they have ever ſince poſſeſs'd.

LXXXIII. Theſe *Metals* and *Minerals*, appear differently in the Earth, according to the different manner of their firſt Lodgment: For ſometimes they are in looſe and ſmall Particles, uncertainly inclos'd among ſuch Maſſes as they chanc'd to fall down withal: At other times, ſome of their Corpuſcles happening to occur and meet together, affix'd to each other; and ſeveral convening, uniting. and combining into one Maſs, form'd thoſe *Metallick* and *Mineral Balls* or *Nodules* which are now found in the Earth: And according as the Corpuſcles chanc'd to be all of a kind, or otherwiſe, ſo the Maſſes were more or leſs ſimple, pure, and homogeneous: And according as other Bodies, Bones, Teeth, Shells of Fiſh, or the like, happen'd to come in their way, theſe *Metallick* and *Mineral* Corpuſcles affix'd to, and became conjoin'd with 'em; either within, where it was poſſible, in their Hollows and Interſtices; or without, on their Surface and outſides; filling the one, or covering the other; And all this in different Degrees and Proportions, according to the different Circumſtances of each individual Caſe.

LXXXIII. All theſe things are but proper Effects of ſuch a common Subſidence of all theſe Maſſ-

Maſſes and Corpuſcles together in the Chaotick Sediment as is above-mention'd: And no longer or more particular Account is neceſſary, or can be ſatisfactory, till Dr. *Woodward's* larger Work, (which we in time hope for,) affords us the Obſervations more nicely and particularly than we yet have them. To which therefore the Inquiſitive Reader muſt be referred in this and the like Caſes.

LXXXIV. The inward Parts of the preſent Earth are very irregular and confus'd. One Region is chiefly *Stony*, another *Sandy*, a third *Gravelly*. One Country contains ſome certain kinds of *Metals* and *Minerals*, another contains quite different Ones. Nay, the ſame Lump or Maſs of Earth not ſeldom contains the Corpuſcles of ſeveral *Metals* and *Minerals* confuſedly intermixt one with another, and with its own Earthy Parts. All which Irregularities, with ſeveral others that might be obſerved, even contrary to the Law of ſpecifick Gravity, in the placing of the different *Strata* of the Earth, demonſtrate the original *Fund* or *Promptuary* of all this upper factitious Earth, to have been in a very wild, confuſed and *Chaotick* Condition.

LXXXIV. Seeing the Sediment of the Waters was compos'd of what Earthy Matter was uncertainly brought up out of the inner Earth, and of what a true and proper Chaos afforded, theſe Phænomena are as natural and accountable therefrom, as on any other mechanical Hypotheſis they muſt appear ſtrange, perplexing, and inexplicable to Philoſophick Minds. For certainly by the irregular diſpoſition of Bodies in ſuch a Chaotick Sediment, and by the as irregular Tempeſts and Commotions of the Waters, particularly by that conſtant and notable Current of the main Maſs of them from *Eaſt* to *Weſt*, ariſing from their not yet fully accompanying the Earth in its Diurnal Motion, and its conſequent Effects,

the genuine Order, Craſſitude, and Poſition of the *Strata*, ſubſiding ſtill all the while according to their ſeveral Specifick Gravities, would be ſufficiently diſturb'd and interrupted; and upon the whole, juſt ſuch an irregular Cruſt would be form'd by the Sediments of Waters as we find in fact this upper one of our Earth really is.

LXXXV. The uppermoſt and Lighteſt *Stratum* of Soil or *Garden Mold*, as 'tis called, which is the proper Seminary of the Vegetable Kingdom; is ſince the Deluge very thick ſpread uſually in the Vallies and Plains, but very thin on the Ridges or Tops of Mountains: Which laſt for want thereof are frequently Stony, Rocky, Bare and Barren.

LXXXV. Two plain Reaſons are to be given for this Phænomenon: (1.) The Quantity of Water, and its Sediment; and by conſequence of Soil or fertile Earth was leſs over the Mountains than over the Plains and Vallies. (2.) After the Subſidence of the Sediment, and before its entire Conſolidation, the Tops of Mountains were moſt expos'd to the fury of the Winds and Storms; which would therefore more eaſily bear away that lighteſt and leaſt united *Stratum* which lay uppermoſt in thoſe bleak Places, than in the more retir'd and skreen'd Plains and Vallies; and by diminiſhing the Soil in the former, and thereby augmenting it in the latter Places, moſt eaſily make all things correſpond in this Propoſition.

LXXXVI. Of the four Ancient Rivers of Paradiſe there are ſtill two remaining, tho' not exactly in the Old Channels: But the other two are ſo utterly loſt, that the *Moſaick* Deſcription does not at all agree to them at preſent.

LXXXVI. That the great Rivers would ſtill retain in great meaſure their old Courſes, has been

been obſerv'd already: And ſeeing the Fountains, and the general Inequalities of the Earth, on which their Origin and Channels depend, were the ſame generally before as ſince the Deluge, there can be no doubt thereof. As to the Rivers of *Paradiſe* themſelves, their Channels being now bury'd perhaps more than an hundred Feet under the Sediment of the Waters of the Deluge, 'tis in vain to expect that the Poſtdiluvian Rivers ſhould correſpond to the Deſcription of thoſe Antediluvian ones. 'Tis well that the preſent *Tigris* and *Euphrates* are not ſo much chang'd as the reſt, that we may not be deſtitute of all means for the finding out the original Situation of thoſe four Primitive Rivers, and thereby of that Country and *Garden of Eden* which was the primary Habitation of Mankind.

LXXXVII. Thoſe *Metals* or *Minerals* which the *Moſaick* Deſcription of Paradiſe, and it s bordering Regions, takes ſuch particular notice of, and the Prophets ſo emphatically refer to, are not now met with ſo plentifully therein.

LXXXVII. The preſent upper Earth being, as we have ſeen, factitious, and a new Cruſt ſince the Flood covering over the ancient Surface thereof, thoſe primitive Treaſures muſt lie too deep in the Bowels of the preſent Earth to be eaſily approach'd by us, and ſo are entirely loſt as to the preſent Uſe or Enjoyment of Mankind.

LXXXVIII. This Deluge of Waters was a ſignal Inſtance of the Divine Vengance on a Wicked World; and was the Effect of the Peculiar and Extraordinary Providence of God.

LXXXVIII. Tho' the paſſing by of a Comet, and all thoſe Effects of it in the drowning of the World, of which we have ſo largely diſcours'd hitherto, be not to be ſtiled in the common uſe

of the Word *Miraculous*, (though in no very improper Senſe, all ſuch Events may have *that* Appellation, of which before;) yet is there the greateſt Reaſon in the World to attribute this mighty Turn and Cataſtrophe of Nature, to the Divine Providence, and the immediate, voluntary, actual interpoſition of God; and that in theſe enſuing Particulars, and on theſe following Accounts; which I ſhall be the ſhorter upon, as having in the place fore-mention'd explain'd my Mind ſomewhat largely about things of this Nature. (1.) The Bodies made uſe of in this and the like Changes of Nature, are originally the Creatures of God, and continually preſerv'd by him; and ſo what they are inſtrumental in, ought moſt juſtly to be aſcrib'd to the principal Cauſe, the great Creator and Conſervator of them all. (2.) All thoſe Powers of Attraction or Gravitation, *&c.* and thoſe Laws of Motion by which theſe Bodies are capable of producing ſuch Effects, are alike owing to the Divine Operation, Appointment, and Efficacy, both in their primitive Impreſſion, and continual Energy; and ſo ſtill the Effects themſelves are to be aſcribed to a Divine Original. (3.) That particular Conſtitution of the Earth on the face of the fluid Abyſs, and other ſuch Diſpoſitions, whereby it became ſubject to an univerſal Deluge, were alſo the Conſequents of the Divine Power and Providence in the formation of the Earth. (4.) That peculiar Situation or Conſtitution of the Orbits and Motions of Comets, whereby they, by reaſon of their paſſing through the Planetary Syſtem each Revolution, are fit to cauſe ſuch great Mutations in it, was the Effect of the particular Order and Diſpoſition of God, in the primary Frame of the Univerſe. (5.) The

Vid. Solut. 2. priùs.

The Coincidence of the Trajectory of a Comet's Orbit either exactly or nearly with the line of the Earths Orbit can have no other Foundation in Nature, than a like design'd and contriv'd Appointment of God. (6.) The so nice and exact Adjustment of the Motions of both the Comet and the Earth; that the former should pass just so near, and impart such a certain Quantity of Waters, neither more nor less than would drown the World, and just cover the highest Mountain, and yet reach no farther; in short, as wou'd secure the Ark for future Generations, and yet not leave one dry-Land Animal besides alive; this Exactness is a most peculiar and strange Effect of the most wise and sagacious Providence of God in this mighty Revolution. But (7.) Lastly, (to omit repeating some things before observ'd as we pass'd along) The precise *Time* of the passing by of the Comet, and thereby of destroying the World, is, in the most peculiar Manner and highest degree, the result of the divine Providence. That exactly at a time which was fit and proper, and in an Age that justly deserv'd so great a Judgment, the Comet should come by, and overwhelm the World, is very remarkably and extraordinarily the Finger of God himself. That Omniscient Being who foresaw when the degeneracy of human Nature would be arriv'd at an *unsufferable* Degree of Wickedness, the Iniquities of the World would be compleately *full*; and when consequently his Vengeance ought to fall upon them; prediſpoſed and preadapted the Orbits and Motions of both the Comet and the Earth, so that at that very time, and only at that very time, the former should pass close by the latter, and bring that dreadful Punishment up-

on them. Had not God Almighty on purpoſe thus adjuſted the Moments and Courſes of each, 'twere infinite odds that ſuch a Conjunction or Coincidence of a Comet and a Planet, would never have happen'd during the whole ſpace, between the Creation and Conflagration of this World; much more at ſuch a critical Point of time when Mankind, by their unparallel'd Wickedneſs were deſerving of, and only diſpos'd for this unparallel'd Vengance, no leſs than almoſt an utter Exciſion.

And this I take to be the Secret of the Divine Providence in the Government of the World, and that whereby the Rewards and Puniſhments of God's Mercy and Juſtice are diſtributed to his Rational Creatures, without any Diſturbance of the ſettled Courſe of Nature, or a Miraculous Interpoſition on every Occaſion. Our Imperfection is ſuch that we can only act *pro re natà*, can never know before-hand the Behaviour or Actions of Men; neither can we foreſee what Circumſtances and Conjunctures will happen at any certain time hereafter; and ſo we cannot provide for future Events, nor prediſpoſe things in ſuch a manner that every one ſhould be dealt with, or every thing done no otherwiſe than if we were then alive and preſent, we ſhould think proper and reaſonable, and ſhould actually do. But in the Divine Operation 'tis quite otherwiſe: God's Preſcience enables him to act after a more ſublime Manner; and by a conſtant Courſe of Nature, and Chain of Mechanical Cauſes, to do every thing ſo, as it ſhall not be diſtinguiſhable from a particular Interpoſition of his Power, nor be otherwiſe than on ſuch a particular Interpoſition would have been brought to paſs. He who has

has created all things, and given them their ſeveral Powers and Faculties, foreſees the Effects of 'em all: At once looks through the entire Train of future Cauſes, Actions, and Events, and ſees at what Periods, and in what Manner 'twill be neceſſary and expedient to bring about any Changes, beſtow any Mercies, or inflict any Puniſhments on the World: Which being unqueſtionably true, 'tis evident He can as well provide and prediſpoſe natural Cauſes for thoſe Mutations, Mercies or Judgments before-hand, he can as eaſily put the Machine into ſuch Motions as ſhall, without a neceſſity of mending or correcting it, correſpond to all theſe foreſeen Events or Actions, as make way for ſuch Alterations afterward by giving a random force to the whole: And when theſe two Ways are equally poſſible, I need not ſay which is moſt agreeable to the Divine Perfections and moſt worthy of God. So that when the Univerſal Courſe of Nature, with all the Powers and Effects thereof, were at firſt deriv'd from, and are continually upheld by God; and when nothing falls out any otherwiſe, or at any other time, than was determin'd by Divine Appointment in the Primitive Formation of the Univerſe: To aſſign Phyſical and Mechanical Cauſes for the Deluge, or ſuch mighty Judgments of God upon the Wicked, is ſo far from taking away the Divine Providence therein, that it ſuppoſes and demonſtrates its Intereſt in a more Noble, Wiſe and Divine Manner than the bringing in always a miraculous Power would do. Let us ſuppoſe a *Fulmen* or Thunderbolt originally, and on purpoſe, put into ſuch a Motion, as without any farther Interpoſition of Providence, would direct it to the Head of a Blaſphemer;

and whilſt he was curſing his Maker, ſtrike him dead upon the Spot; which the Preſcience and Power of God ſhew to be equally poſſible with a preſent Miracle: I think ſuch a violent Death would be as properly *extraordinary*, and a *Divine Judgment*, as any other whatſoever: Which I take to have been the very caſe of the Deluge, which I am here peculiarly concern'd about. *Nature is God's Conſtitution*, and ever ſubſervient to him; and the State of the *Natural* is always accommodated to that of the *Moral* World. What is done by *Nature* and *Second Cauſes*, is moſt properly done by God at laſt, who is ultimately and really almoſt all we can mean by thoſe Names.

Corollary. *What has been here ſaid upon this Occaſion, if rightly underſtood and apply'd to all other Caſes, would clear our Minds from many of thoſe Perplexities about the Divine Providence which are ready to diſturb 'em. For Inſtance: We pray to God for fruitful Seaſons, for Health, for Peace, for the Succeſs of our Endeavours, for a bleſſing on our Food and Phyſick, and deprecate the contrary Miſeries from us: Yet at the ſame time we ſee the Seaſons depend on the ſettled Courſe of the Sun, or other natural and neceſſary Cauſes; we find our Health or Sickneſs to be the proper Effects of our Diet and Regimen; we obſerve Peace and War ſubject to the Intrigues of Princes, and the plain reſults of viſible conjunctures in human Affairs: we know that worldly Prudence and Cunning has a main Stroke in the Succeſs of Mens Labours; we feel the advantageons Effects of ſome Food and Phyſick, aud have Reaſon to believe the ſame does very much reſult from the Goodneſs of the Drugs, the Fitneſs of the Proportion, the Diſpoſition of the Body, and the Skill of the Phyſician; and can frequently give a plain and Mechanical Reaſon*

ſon of the different Operations of all thoſe things; neither do we hope for the Exerciſe of a miraculous *Power in theſe or the like Caſes. The Conſideration and Compariſon of all theſe things together frequently puzzles the Minds of good Men, eſpecially thoſe that are more Contemplative and Philoſophical, and makes 'em wonder what Intereſt our Devotions, or what Advantage our Prayers can have. Second Cauſes will work according to their Natures, let Men's Supplications be never ſo importuate: And to expect a Miracle in anſwer to every Petition, is more than the moſt Religious dare pretend to. This* Dilemma *has had a contrary Effect upon the Minds of Men; while the* Philoſopher *was in Danger of doubting of the Succeſs, and ſo ready to grow cold in his Devotions; and the more unthinking, yet more religious, Man rejected the Conſideration of the Manner, or the Operation of ſecond Cauſes, and more wiſely look'd up only to God, and imagin'd him immediately concern'd in every Occurrence, and on that Principle doubted not the Effect of his Prayers. But 'tis, methinks, evident that neither of theſe were exactly in the Right; and equally ſo, that the due Conſideration of what has been above-ſaid, would prevent the* Dilemma, *and take away all reaſonable Scruple. 'Tis true, that Natural Cauſes will operate as uſual. 'Tis alſo true that Miracles are not ordinarily to be expected: But withal 'tis as true that the ſame all-wiſe Creator, who appointed that conſtant Courſe of Nature, foreſaw at the ſame time all thoſe Diſpoſitions of Men, and in particular thoſe Devotions of his Worſhippers, to which ſuitable Rewards were to be provided, and ſuitable Anſwers returned; and therefore has ſo ordered the* Series *of Natural Cauſes, as to make that very Proviſion for the ſame, which otherwiſe he would have done by the miraculous Interpoſition of his Providence; and which therefore is equally to be aſcribed to him with*

the

the greateſt Wonders. 'Tis true, the Frame of Nature is now conſtant and ſettled: But 'tis true alſo that it was ſo ſettled on the Proſpect of the moral Behaviour, and in correſpondence to the good or bad Actions of Mankind, foreſeen and preſuppoſed in the Primitive Conſtitution of all: And by Conſequence whatever Benefits or Afflictions the conſtant courſe of Nature and ſecond Cauſes bring to us, are equally capable to be the Matter of our Prayers or Deprecations, of our Humiliation or Gratitude before God, as the immediate Effects of a miraculous Power; and the Divine Providence no leſs to be acknowledged and addreſſed to in the former than in the latter Caſe. But becauſe our Imperfection is ſo great that the Conſideration of the Priority *of the* future Actions *of Men to the* Preſcience of God *in the Order of Nature; and the Dependance of the* latter *on the* former, *is too high for our Comprehenſions, and tho' demonſtrable by, yet inſcrutable to the Reaſon of Mankind; and becauſe we are therefore ſtill ready to conceive what is foreknown by God to be neceſſary and inevitable; let the moral Behaviour of Men be as it will: Becauſe I ſay, this* Preſcience *of God is too* Divine *a thing to be eaſily penetrated and applied by us to all Occaſions, I confeſs 'tis the moſt* Obvious *and the moſt* Prudent, *as well as the moſt* Scriptural Way *to keep within our Faculties, and always to ſuppoſe an immediate Exerting of a new Power in every new Turn in the World; and without the troubleſome Inquiſition into the Nature and Deſign of the Primitive Conſtitution of the Material World, to refer all Things to an immediate Providence: Into which every one muſt* ultimately *and* originally *be reſolved, and which has as well and as congruouſly taken care of all Events, as if ſuch a miraculous Efficiency were really concerned on every individual Occaſion. Which whole Matter thus explained, may be of Uſe to thoſe who*

through

through the not understanding the Method of the Divine Providence, and its Consistency with an uninterrupted Course of Nature, have perplexed their own Minds, and endangered their Religion: Which pernicious Scruples true Philosophy, when rightly understood, is the only Means of dispelling and preventing. Nothing being more true or more momentous than this, that 'Tis ever our Ignorance or Mistakes only, that sully the Providence of God, or diminish our Religious Affections to him.

LXXXIX. Since the Deluge there neither has been, nor will be any great and general Changes in the State of the World, till that time when a Period is to be put to the present Course of Nature.

LXXXIX. Seeing we know no other Natural Causes that can produce any great and general Changes in our Sublunary World, but such Bodies as can approach to the Earth, or, in other Words, but *Comets*; and seeing withal, the next Approach of a Comet, will, in probability, bring the present State of Things to a Conclusion, and *Burn* the World, of which presently; 'Tis evident the Earth is secure enough all the intermediate space: And as hitherto we accordingly find it has been, so we need not fear but it will be, preserv'd till the fore-mention'd *Conflagration.*

Scholium. That Comets are not incapable of causing such great Changes as I have here already, or shall afterward ascribe to them, give me leave to quote the Testimonies of two great Astronomers and very competent Judges in this case: I mean the two famous *Oxford* Professors, the late Dr. *Gregory* and Dr. *Halley.* The Words of the former are these: *Alius etiam erit quandoque Cometæ sive effectus sive usus: Si nempe Cometa prope Planetam transeat, (ita ferentibus eorum Orbitis & moti-* Astro. p. 481.

motibus) *hunc ita attrahet ut ejus Orbita immutetur, (mutatâ etiam ex mutua actione Cometæ Orbita) unde Planetæ Periodus etiam mutabitur. Sed & Satellitem ita per attractionem deturbare poterit Cometa, ut, relicto ſuo Primario, ipſe evadat Primarius, circa Solem deinceps rotatus. Præterea, mutationes multo maximas in ipſo Planetæ Globo producere poterit, non ſolum prolectando fluidum, ſi quod ſit, ſed per alias etiam qualitates; ſi v. g. corpus tam vaſtum, &, ſi ex ſolis vicinia prodeat, ignitum, Tellurem noſtram è propinquo pretervehatur.* Dr. *Halley's* Words are as follow: *Inter omnes Nullus propriore appulſu Terris minatus eſt quam ille anni* 1680. *Hic inito Calculo non amplius ad Boream diſtabat ab Orbe noſtro annuo quam ſemidiametro Solari, (ſive radio Lunaris Orbitæ, uti exiſtimo,) idque* Novemb. 11°. 1ʰ. 6′. P. M.. *Quo tempore, ſi Terræ quoad Longitudinem conjunctus fuiſſet, Parallaxis ſane Lunari æqualis in Cometæ motu obſervari potuiſſet. Hæc Aſtronomis dicta ſunto: Quæ vero ab hujuſmodi allapſu vel contactu, vel denique colliſione Corporum cæleſtium (quæ quidem omnino non impoſſibilis eſt) conſequi debeant; rerum Phyſicarum ſtudioſis diſcutienda relinquo.*

Act. Philoſoph. p. 1898, 1899. No. 297.

Scholium 2. Having now finiſh'd my *Account of the Deluge*, I ſhall here add a mighty Atteſtation which the moſt conſiderable Adverſary of my Theory, has given to thispart of it: And being the Confeſſion of an Adverſary, D. *Keill*, and therefore to be ſure no other than what was extorted by the plain force of Reaſon and Argument, is, I think, of great Conſequence in the preſent caſe, and ſufficient to induce all others who are either leſs competent Judges of the Nature of that Evidence I have brought, or have not ſo carefully conſider'd it, to re-examine it more carefully than they have yet done, and not to be deterr'd by

by any leſſer Miſtakes I may have been at firſt guilty of, from enquiring whether in the main I have not Evidence for what I have aſſerted. Dr. *Keill*'s Words are theſe: *I cannot but acknowledge, that the* Author of the New Theory of the Earth, *has made greater Diſcoveries, and proceeded on more Philoſophical Principles, than all the Theoriſts before him have done. In his Theory there is ſome very ſtrange Coincidents, which make it indeed probable, That a Comet at the time of the Deluge paſs'd by the Earth. It is ſurprizing to obſerve the exact Correſpondence between the* Lunar *and* Solar *Year, upon the Suppoſition of a Circular Orbit, in which the Earth moved before the Deluge. It cannot but raiſe Admiration in us, when we conſider, that the Earth at the time of the Deluge was in its* Perihelion, *which would be the neceſſary Effect of a Comet that paſſed by at that Time, in drawing it from a Circular to an Elliptical Orbit. This, together with the Conſideration that the Moon was exactly in ſuch a Place of its Orbit at that time, as equally attracted with the Earth, when the Comet paſſed by, ſeems to be a very convincing Argument that a Comet really came very near, and paſs'd by the Earth, on the Day the Deluge began.*

CHAP.

CHAP. V.

A Solution of the Phænomena *relating to the* General Conflagration ; *and of the* Conjectures *pertaining to the ſame, and to the ſucceeding Period, till the* Conſummation *of all Things.*

See Cicero De Nat. Deor. l. 2. c. 46.

XC. AS the World once periſhed by Water, ſo it muſt by Fire at the Concluſion of its preſent State.

XC. As we have given an Account of the *Univerſal Deluge* from the Approach of a Comet in its *Deſcent towards* the Sun ; ſo will it not be difficult to account for the *General Conflagration* from the like Approach of a Comet in its *Aſcent from* the Sun. For 'tis evident from what has been already explain'd, that in caſe a Comet paſs'd behind the Earth, though it were in its Deſcent, yet if it came near enough, and were it ſelf big enough, it would ſo much retard the Earth's annual Motion, and oblige it to revolve in an *Ellipſis* ſo near to the Sun in its *Perihelion*, that the Sun it ſelf would ſcorch and burn, diſſolve and deſtroy it in the moſt prodigious Degree ; and this Combuſtion being renew'd every Revolution, would render the Earth a perfect *Chaos* again, and change it from a Planet to a Comet for ever after. 'Tis evident *this* is a ſufficient Cauſe of a general Conflagration with a Witneſs ; and ſuch an one as wou'd entirely ruin the Make of the pre-

preſent, and the Poſſibility of a future World. On which laſt Account, if we allow the following Phænomena, we muſt not introduce *this*, at this Period however; but ſee whether a Conflagration of a leſs deſtructive, and more refining Nature be not to be expected, and may not be accounted for. And here let it be obſerv'd, that the Central Heat of it ſelf ſeems ſufficient to burn up, and diſſolve the upper Earth; (as thoſe who with Dr. *Woodward*, own the Power and Vehemence of the ſame now, and its aſtoniſhing Force, and terrable Effects in Earthquakes, Eruptions of *Volcano*'s, and other Phænomena of preſent Nature, ought to allow;) if theſe two Things were by any means remov'd; I mean the Waters of the Seas and Ocean, and the Coldneſs of the Air: For 'tis the vaſt Quantity of Waters of the Earth, and the Coldneſs of the middle Region of the Air every where, and of the whole Air in the Frigid *Zones*, returning the Vapours *cold down* again, which were ſent *up* into 'em never ſo *hot*, which ſeems ſtill to prevent the Effects of the Subterraneous Heat, and to hinder the Conflagration of the Earth. If therefore the paſſing by of a Comet be capable of emptying the Seas and Ocean, and of rendring the Air, and its contiguous upper Surface of the Earth extreamly hot and inflam'd, no more, I ſuppoſe, will be neceſſary to a general Conflagration: Or if any more Aſſiſtance be afforded by the Preſence of the Comet, it will be *ex abundanti*, and only contribute ſtill the more certainly, and the more ſuddenly, to kindle ſuch a fatal Fire, and ſo dreadful a Combuſtion. Now that both thoſe requiſite Conditions for a general Conflagration wou'd be the Conſequents of this Paſſage of an aſcending Comet, is plain and evi-

evident: For (1.) On the Approach of the Comet, a vaſt Tide wou'd ariſe in the great Abyſs; and by the new, more conſiderable, and more violent Elevations thereof into the Protuberances and the Spheroid Surface of the whole, the old Fiſſures and Breaches wou'd be open'd again, and not a few new ones generated; not only, as at the Deluge, in the Mountainous or more looſe Columns, extant above the Surface of the Waters of the Globe; but in all Parts, and under the Seas and Ocean, as well as in other Places; which Fiſſures muſt immediately ſwallow up the main Maſs or Bulk of the Waters upon the Face of the Ground, and ſend 'em to their Fellow-Waters in the Bowels of the Earth; which was the firſt and principal Step towards a general Conflagration. And then (2.) The Vapours acquir'd from the Comet's Atmoſphere, which at the Deluge were, by reaſon of their long Abſence from the *Sun* in the remote Regions beyond *Saturn*, pretty cool; at this time muſt be ſuppos'd, by reaſon of their ſo late and near Approach to the *Sun* about the *Perihelion*, exceeding hot and burning; and that to ſo extraordinary a Degree, that nothing but the *Idea* of the Mouth of a *Volcano*, juſt belching out immenſe Quantities of liquid and burning Steams, or Torrents of fiery Matter, can in any meaſure be ſuitable to the Violence thereof. Imagine therefore, the Earth to paſs through the very middle of this Atmoſphere, for 10,000 Miles together, and to bear off with it a *Cylindrical* Column thereof, whoſe *Baſis* were ſomewhat larger than a great Circle on the Earth, and whoſe Altitude were the Number of Miles juſt now mention'd; and then tell me whether the *Air*, and its adjoining uppermoſt Region of the Earth, will not be ſuffi-

ſufficiently hot and ſcorching; which was the other Step to the general Conflagration. Beſides all which, what Quantities of this fiery Exhalation, or Torrent of melted liquid Matter wou'd run down the Fiſſures into the Bowels of the Earth, and by joining with the Central hot Steams already there, invigorate them, and accelerate the direful Inflammation; and what piercing and ſcorching fiery Corpuſcles the Central Body it ſelf during its Vicinity, wou'd alſo ſend out; and what an additional Power would thereby be afforded the prevailing Heat, I need not ſay. Upon the whole, I may appeal to the Reader, if the Concurrence of all theſe external Cauſes, to ſay nothing here of any internal Diſpoſitions in the Earth, it ſelf thereto, do not appear abundantly ſufficient within a little time to ſet the World on Fire, and bring on that terrible Conflagration which both Sacred and Profane Teſtimonies conſpire to forewarn us of; and ſo whether the *Theory of Comets* does not afford us almoſt as commenſurate and compleat an Account of the *future Burning*, as it already has done of the *ancient Drowning* of the Earth.

Vid. Theor. l. 3. c. 7, &c.

XCI. The ſame Cauſe which will ſet the World on Fire, will alſo cauſe great and dreadful *Tides* in the *Seas* and in the *Ocean*: with no leſs Agitations, Concuſſions, and *Earthquakes* in the *Air* and *Earth*.

XCI. Seeing the Eruption of the Central Heat, (the Cauſe, 'tis probable, of all our Earthquakes,) the Preſence of a Comet; (the Cauſe once already of the moſt prodigious

Tides that ever were,) and the inflam'd Chaos, or ſcorch'd Atmoſphere of a Comet, (a ſmaller Part of which probably has occaſion'd all our Tempeſts, our Meteors, our Thunder and Lightning ever ſince the Deluge,) will all concur at once, and with joint Forces conſpire together; nothing in the World can be ſuppos'd more terrible, nor more exactly correſpondent to the Phænomenon before us.

XCII. The Atmoſphere of the Earth, before the Conflagration begins, will be oppreſs'd with Meteors, Exhalations, and Steams; and theſe in ſo dreadful a manner, in ſuch prodigious Quantities, and with ſuch wild confuſed Motions and Agitations, That the Sun and Moon will have the moſt frightful and hideous Countenances, and their ancient Splendor will be entirely obſcur'd; the Stars will ſeem to fall from Heaven; and all manner of Horrid Repreſentations will terrify the Inhabitants of the Earth.

XCII. Thoſe who conſider how great a Comet's Atmoſphere appears to us after its Perihelion, and what large Quantities of its newly ſcorch'd Maſſes our Air muſt be clogg'd and burthen'd withal, will expect no other Effects than thoſe here mention'd; and will eaſily believe that all ſuch horrible Appearances would enſue, and that in the moſt amazing Degree, and extravagant Inſtances poſſible. The *Theoriſt*'s Repreſentation of this Matter will be, generally ſpeaking, but a fair and juſt Idea thereof.

Theor. l. 3. c. 11.

XCIII. The *Deluge* and *Conflagration* are referr'd, by ancient Tradition, to great Conjunctions of the Hea-

Heavenly Bodies; as both depending on, and happening at the ſame.

XCIII. In our Accounts of the Deluge and Conflagration, there is a notable Conjunction of the Heavenly Bodies indeed; not ſuch an Imaginary one as the Aſtrologers ſo ridiculouſly make a ſtir about; the bare Poſition of two or more of the Celeſtial Bodies in or near the ſame ſtreight Line, from the Eye of the Spectator, while they are at the moſt remote Diſtances from one another; which is a poor jejune Thing indeed: But a real one with a Witneſs; when Three of the Heavenly Bodies, the Earth, the Moon, and the Comet, not only are in an Aſtrological Heliocentrick Conjunction, or only ſeem to an Eye in the Sun to be conjoin'd together, but are really ſo near as to have the mightieſt Effects and Influences on one another poſſible; which we have ſufficiently ſhewn in the preſent *Theory*, and which does peculiarly correſpond to the Phænomenon before us.

Corollary. *'Tis not impoſſible but the ancient Tradition, that the Deluge and Conflagration ſome way depended on certain remarkable Conjunctions of the Heavenly Bodies, miſunderſtood, and afterward precariouſly and widely miſapply'd, might give Occaſion and Riſe to* Aſtrology; *or to that mighty Quoil and Pother ſo many in all Ages have made about the* Conjunctions, Oppoſitions, *and* Aſpects *of the Heavenly Bodies, and the* Judiciary *Predictions therefrom; which even the Improvements of ſolid Philoſophy in our Age have not been able yet to baniſh wholly from among us; the*

Occaſion whereof is otherwiſe exceeding dark and unaccountable.

XCIV. This general Conflagration is not to extend to the entire Diſſolution or Deſtruction of the Earth, but only to the Alteration, Melioration, and peculiar Diſpoſition thereof into a New State, proper to receive thoſe Saints and Martyrs for its Inhabitants, who are at the firſt Reſurrection to enter, and to live and reign a Thouſand Years upon it, till the ſecond Reſurrection, the general Judgment, and the final Conſummation of all Things.

Lem. 68. cum Corol. prius.

XCIV. Seeing the Abyſs conſiſts of a denſe and compact Fluid, not capable of any Rarefaction or Diſſolution by the moſt violent Heat imaginable, 'tis evident that the Cauſes here aſſigned can only extend to the upper Orb, or habitable Earth, without any farther Progreſs. So that the Effect of this Conflagration will be the Reduction of this upper Earth, and its Atmoſphere, into a confus'd, mixt, and Chaotick State; much ſuch an one as was before obſerv'd to have preceded the Original Formation of it. So that as the Heat decreaſes, 'tis but reaſonable to expect a kind of Reiteration of the *Moſaick* Six Days Creation, or a Renovation of the Primitive State of the Earth; to the Deſcription of which therefore I muſt refer the Reader.

XCV. The State of Nature during the *Millennium* will be very different from that at preſent, and more agreeable to the *Antediluvian*, *Primitive* and *Paradiſiacal* ones.

XCV. This is apparent from the Concluſion of the former *Solution*.

XCVI.

XCVI. The Earth in the *Millennium* will be without a Sea, or any large Receptacle filled with mighty Collections and Quantities of Waters.

XCVI. The Primitive Seas depended mainly on Two Things; the former, the concurrence of the Central and Solar Heat for no leſs than Nine or Ten Months together, in the Elevation of ſufficient Quantities of Vapours: The latter, the Earth's conſiderable Solidity attain'd before the deſcent of the ſame Vapours which were to compoſe the Seas, of which we are ſpeaking: So that if either of theſe be wanting in this reiterated Formation of the Earth, 'tis evident the Effect muſt fail, and the *Globe* be no longer a *Terraqueous* one after the Conflagration. Now the next Propoſition but one, aſſerting the Probability of the entire Abſence of the Sun, muſt infer a Probability of the entire Abſence of Seas alſo, according as this Propoſition aſſerts. Solut. 6, & 7. prius.

XCVII. The Earth in the *Millennium* will have no Succeſſion of Light and Darkneſs; Day and Night; but a perpetual Day.

XCVII. In caſe the Earth's Diurnal Rotation, upon which theſe Viciſſitudes depend, were retarded ſo as to be only exactly equal and commenſurate to its Annual Motion, (which is the Caſe in the Moon's Diurnal and Menſtrual Revolution at preſent, as we have before obſerv'd,) the Earth would conſtantly expoſe the ſame Hemiſphere to the Sun, (as the Moon does now to the Earth,) and all Succeſſion of Day and Night for ever ceaſe; the Lem. 42. prius.

one half of the Globe enjoying a perpetual Day, while the other was involv'd in Darkneſs, or excluded all Advantages from him, and thereby enduring a continual Night, ſo far as natural Cauſes are here to be conſider'd. And that this Retardation of the Earth's Diurnal Rotation (even without a recurring to the miraculous Power of its firſt Author) is accountable from that paſſing by of a Comet, which we aſſign for the Occaſion of the Conflagration, is very eaſy and obvious: For in caſe its Aſcent and Paſſage by, be on the *Eaſt* Side, or before the Earth; and in caſe it approach ſo near as to rub againſt it, 'tis evident ſuch an Impulſe is contrary to the courſe of the Diurnal Rotation, and is therefore capable (the Proportions of every Thing being adjuſted by Divine Providence) of putting ſuch a Stop to the ſame as is neceſſary to the preſent Phænomenon, and ſo may put a Period to that conſtant Succeſſion of Light and Darkneſs, Day and Night, which has obtain'd ever ſince the Fall of Man; and withal diſtinguiſh the Surface of the Earth into two quite different and contrary Hemiſpheres; near the *Vertex* of one of which the Sun it ſelf, and near that of the other, its oppoſite Point in the Heavens, will be always ſituate.

Corollary. *Seeing ſuch a Rub of the Comet would affect the Annual Motion of the Earth as well as the Diurnal, 'tis poſſible it might retard the former as well as the latter, and reduce the* Elliptical *Courſe and Orbit of the Earth, to its ancient Circular one again, or into ſome other* Elliptical *one of a very different* Species *from the preſent.*

XCVIII.

XCVIII. The State of the *Millennium* will not ſtand in need of, and ſo probably will be without, the Light and Preſence of the Sun and Moon.

XCVIII. Seeing the Earth would be on the foregoing Suppoſition diſtinguiſhed into Two quite different Hemiſpheres, the one of which would be wholly deſtitute of the Light and Preſence of the Sun, and, ſo far as appears by St. *John*, ſupply'd by a ſupernatural Light, fixt and permanent above its *Horizon*, (at leaſt as to the main and middle Parts of it, diſtinct from thoſe darker *Four Corners of the Earth*, whence *Gog* and *Magog* ſhall at length attempt to deſtroy the Saints inhabiting there, and which poſſibly may be the Σκότος ἔξώτερον ſo often mention'd in the New Teſtament:) 'Tis clear that the firſt Branch of this Propoſition is accountable thereby, ſo far as this Phyſical Theory is concern'd therein. And as to the *Moon*, ſeeing 'twas only a ſignal and peculiar Providence that caus'd her equal Acceleration, and conſequent accompanying the Earth at the former paſſing by of the Comet; and that no ſuch Providence need here be expected; 'tis evident that that Rub or Stoppage of the *Earth's Annual Motion*, which retards the ſame, and does not retard the Moon's alſo, may ſeparate theſe Planets, and procure their Orbits, Courſes, and Periods to be quite different from one another's ever after; according to the greateſt Rigor of the preſent Propoſition.

Apoc. xx, 7, 8, 9.

Vid. etiam Apoc. xxii 14, 15.

Vid. Gregor. Aſtronom. ad Schol. 1. Soiut. 92. priùs citat.

XCIX. At the Concluſion of the *Millennium*, the Final *Judgment* and *Conſummation* of all things, the Earth will deſert its preſent Seat and Station in the World, and be no longer found among the Planetary *Chorus*.

XCIX. If

XCIX. If any Comet inſtead of paſſing by, or gently rubbing the Earth, hit directly againſt it, in its Courſe either towards or from the Sun, it muſt deſert its ancient Station, and move in a quite different Elliptick Orbit; and ſo probably of a Planet become again a Comet, for the future Ages of the World.

N. B. Some of the Figures belonging to the Comet's Courſe at the Deluge were fitted to the two firſt Editions of this Book, before I ſuſpected that the Comet which I ſaw *A. D.* $168\frac{8}{7}$, was that very Comet which occaſion'd the Deluge. They ought to have the Angle between the Trajectory of the Comet, and the Line connecting the Sun and Comet about 35°. where the Moon will be about $2^{d}.21^{h}.$ paſt the Syzygy. The neareſt Diſtances alſo, af and xy, *Fig.* 2. ought to be greater, and the Comet it ſelf larger than before, to compenſate the ſame. Nor does the Obſervation of the Comet's Bigneſs properly contradict either the former or the latter Hypotheſis. Any Exactneſs in the Meaſure of even its Diameter not being to be had; and its particular Denſity being wholly unknown alſo.

N. B. It is fit here to rectify one conſiderable Miſtake in *pag.* 217. where the Note ought to run thus: And there is no more Difference in the Caſe of the *Samaritan* Numbers, than that we are obliged to abate $\frac{1}{8}$ in the ſuppoſed Motion of the Perihelion: Which as it ſeems of late quicker than in the old Aſtronomy; ſo may it be allow'd to have gone ſtill ſomewhat ſlower in the more ancient Ages, next after the Deluge. Nor will the Poſitions and Revolutions of the ſeveral Comets through the Planetary Regions admit of a perfect Uniformity in ſuch Motions.

COROL-

COROLLARIES

From the WHOLE.

I. *SEEING the new and ſolid Improvements of Philoſophy do all along give ſuch rational Accounts of thoſe Ancient* Theorems, *which have been propagated down from the eldeſt Ages, without being then underſtood, or intelligible to their Propagators; 'tis reaſonable to truſt and rely on ſuch* Ancient Traditions, *not only Sacred, but Prophane alſo, in theſe or any other parallel Caſes; they being in all Probability the moſt valuable* Remains, *and moſt venerable Truths which the primitive Parents of the World deliver'd down to their Poſterity in ſucceeding Generations.*

II. *Seeing moſt of theſe Ancient* Theorems *are very much beyond the diſtinct Knowledge of thoſe who deliver them; contrary to the common Opinion of Mankind, judging uſually by ſenſible Appearances; and in themſelves, conſidering the low State of Natural Knowledge at the ſame Times, were highly improbable, if not utterly incredible to inquiſitive Minds: and indeed ſeveral of them relating to the* Chaos, *the* Creation, *the* primary Conſtitution and State of the World, *and the* Deluge *it ſelf, impoſſible to be diſcovered without Supernatural Revelation; and yet ſeeing, after all, they do now appear almoſt as*

as agreeable to Reaſon, and the moſt ſolid Mechanical Philoſophy, as any new Diſcoveries, built on the exacteſt Obſervations of preſent Nature whatſoever; 'tis apparent that theſe Ancient Accounts, *eſpecially thoſe contain'd in the* Holy Scriptures, *were not originally deriv'd from the Natural Skill and Obſervation of the firſt Authors, or any other meerly Human Means, but from the immediate and Supernatural Revelation of God Almighty; who was therefore much more converſant with Mankind in the firſt, than he has been in theſe laſt Ages of the World; as the* Old Teſtament-*Hiſtory every where aſſures us.*

III. *The Meaſure of our preſent Knowledge ought not to be eſteem'd as the* Κριτήριον, *or Teſt of Truth; or to be oppos'd to the Accounts receiv'd from Prophane Antiquity, much leſs to the inſpired Writings. For notwithſtanding that ſeveral Particulars relating to the eldeſt Condition of the World, and its great* Cataſtrophes, *examin'd and compar'd with ſo much Philoſophy as was till lately known, were plainly unaccountable, and, naturally ſpeaking, impoſſible; yet we ſee, now Nature is more fully, more certainly, and more ſubſtantially underſtood, that the ſame Things approve themſelves to be plain, eaſy, and rational.*

IV. *'Tis therefore Folly in the higheſt Degree, to reject the Truth, or Divine Authority of the Holy Scriptures, becauſe we cannot give our Minds particular Satisfaction as to the* manner, *nay or even* poſſibility *of ſome things therein aſſerted. Since we have ſeen ſo many of thoſe things which ſeem'd the moſt incredible in the whole Bible, and gave the greateſt Scruple and Scandal to* Philoſophick *Minds,*

ſo

ſo fully and particularly atteſted, and next to demonſtrated from certain Principles of Aſtronomy *and* Natural Knowledge; *'tis but reaſonable to expect, in due time, a like Solution of the other Difficulties. 'Tis but juſt, ſure, to depend upon the Veracity of thoſe Holy Writers in other Aſſertions, whoſe Fidelity is ſo entirely eſtabliſh'd in theſe hitherto equally unaccountable ones.*

V. *The Obvious, Plain, or Literal Senſe of the Sacred Scriptures, ought not, without great Reaſon, to be eluded or laid aſide: Several of thoſe very Places which ſeem'd very much to require the ſame hitherto, appearing now to the minuteſt Circumſtances, true and rational; according to the ſtricteſt and moſt literal Interpretations of them.*

VI. *We may be under an Obligation to believe ſuch Things on the Authority of the Holy Scriptures as are properly* Myſteries; *that is, though not really* Contradictory, *yet plainly* Unaccountable *to our* (preſent Degree of) *Knowledge and Reaſon. Thus the Sacred Hiſtories of the* Original Conſtitution, *and great* Cataſtrophes *of the World, have juſtly been in the paſt Ages the Objects of the Faith of* Jews *and* Chriſtians, *though the Divine Providence had not afforded ſo much Light, as that they could otherwiſe ſatisfy themſelves in the Credibility of them, till the new Improvements in* Philoſophy. *And this is but juſt and reaſonable; for ſure the Ignorance or Incapacity of the Creature does by no means afford ſufficient Ground for Incredulity, or juſtify Men in their rejecting Divine Revelation, and impeaching the Veracity or Providence of the Creator.*

VII. *Seeing the Natural and the Moral World are alike ſubject to the Divine Providence, and that the*

the ſame Author has indited thoſe Writings which relate to both; the Diſcovery of the Verity of the Holy Scriptures in the moſt difficult Points relating to the one, *ought to make us entirely ſecure of the like Verity of the ſame Scriptures relating to the* other; *notwithſtanding any Difficulties ſtill remaining about them. As the wiſe, proportionate, and harmonious Order and Regularity of the Natural World, where no Freedom of the Creature interpoſes, and gives any Occaſion for Diſorder, juſtly obliges us to believe the moſt wiſe and equal Methods of Providence to be equally exerciſed about the Moral one alſo; although the Intricacies ariſing from the Abuſe of the Liberty of Will in rational Creatures, render them hitherto more obſcure to us in the latter Caſe than in the former: So certainly the Eſtabliſhment of the Verity of the Scriptures in the moſt harſh and difficult Aſſertions touching the Natural World, (the proper Caſe in which the Improvement of Philoſophy was likely to afford Means for our Determination,) ought to aſſure us of the like Verity of the ſame Scriptures in the other Points, more particularly the Subjects of Divine Revelation, leſs capable of affording any other Means of Satisfaction, and yet more directly the Deſign, Scope, and Drift of the Sacred Writers, and the Concern of Divine Providence than the other.*

Τῷ δὲ Βασιλεῖ τῶν Αἰώνων Ἀφθάρτῳ, Ἀοράτῳ, Μόνῳ Σοφῷ Θεῷ Τιμὴ καὶ Δόξα εἰς τοὺς Αἰῶνας τῶν Αἰώνων. AMHN.

MVSEVM BRITANNICVM

ERRATUM.

Page 35. *lin.* 26, 27. *for* Jupiter, *read* Saturn.